UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to NOAA Fisheries No:
2005/05914

August 22, 2006

Jane Cottrell
Forest Supervisor
Nez Perce National Forest
Route 2, Box 475
Grangeville, Idaho 83530

Re: Endangered Species Act Interagency Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Red Pines Fuel Treatment Project, Red River (1706030507) and Upper Mainstem South Fork Clearwater River (1706030504), Idaho County, Idaho

Dear Ms. Cottrell:

The enclosed document contains a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7(a)(2) of the Endangered Species Act (ESA) on the effects of the Red Pines Fuel Treatment Project. In this Opinion, NMFS concludes that the proposed actions are not likely to jeopardize the continued existence of Snake River steelhead. Further, NMFS concludes that the proposed actions are not likely to result in the destruction or adverse modification of designated critical habitat for Snake River steelhead.

As required by section 7 of the ESA, an incidental take statement prepared by NMFS is provided with the Opinion. The incidental take statement describes reasonable and prudent measures NMFS considers necessary or appropriate to minimize incidental take associated with this action. It also sets forth nondiscretionary terms and conditions, including reporting requirements, that the Nez Perce National Forest (NPNF) must comply with to carry out the reasonable and prudent measures. Take from actions by the NPNF that meet these terms and conditions will be exempt from the ESA take prohibition.

This document also includes the results of NMFS' consultation on the action's likely effects on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes an identical set of eight conservation recommendations to avoid, minimize, or otherwise offset potential adverse effects to EFH. Section 305(b)(4)(B) of the MSA requires Federal agencies to provide a detailed written response to NMFS within 30 days of receiving these recommendations. If the response is inconsistent with the recommendations, the NPNF must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action

and the recommendations. In response to increased oversight of overall EFH program effectiveness by the White House Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the EFH portion of this consultation, we ask that you clearly identify the number of conservation recommendations accepted.

If you have questions regarding this consultation, please contact Dale Brege at (208) 983-3859 at the NMFS' North Idaho Branch Office in Grangeville, Idaho.

Sincerely,

For Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: J. Foss - USFWS
R. Hennekey - IDFG
I. Jones - NPT
P. Clark - NPNF

Endangered Species Act – Section 7 Consultation
Biological Opinion

and

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

for the

Red Pines Fuel Treatment Project

Hydrologic Units:
Red River (1706030507)
Upper Mainstem South Fork Clearwater River (1706030504)
Idaho County, Idaho

Lead Action Agency: USDA Forest Service, Nez Perce National Forest

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Date Issued: August 22, 2006

Issued By: for _____
D. Robert Lohn
Regional Administrator

National Marine Fisheries Service No.: 2005/05914

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ACRONYMS

BA	Biological Assessment
BMPs	Best Management Practices
CWA	Clean Water Act
DPS	Distinct Population Segment
DQA	Data Quality Act
ECA	Equivalent Clearcut Area
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Units
FEIS	Final Environmental Impact Statement
FISHSED	Model relating fish potential with sediment
FSR	Forest Service Roads
HUC	Hydrologic Unit Code
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IFPA	Idaho Forest Practices Act
λ	lambda
LWD	Large Woody Debris
MDCs	Mitigation and Design Criteria
MPI	Matrix of Pathways and Indicators
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NPNF	Nez Perce National Forest
NEZSED	NPNF's sediment model
Opinion	Biological Opinion
PCEs	Primary Constituent Elements
Red Pines Project	Red Pines Fuel Treatment Project
RHCAs	Riparian Habitat Conservation Area
RM	River Mile
RMOs	Riparian Management Objectives
RPMs	Reasonable and Prudent Measures
SFCR	South Fork Clearwater River
Spill Plan	Spill Prevention Control and Countermeasures Plan
SWCPs	Soil and Water Conservation Practices
TMDL	Total Maximum Daily Loads
Tribe	Nez Perce Tribe
TRT	Interior Columbia Basin Technical Recovery Team
USFWS	U.S. Fish and Wildlife Service
VSP	Viable Salmonid Poplulation

1. INTRODUCTION

The biological opinion (Opinion) and incidental take statement portions of this consultation for the Red Pines Fuel Treatment Project (Red Pines Project) proposed by the Nez Perce National Forest (NPNF) were prepared by the National Marine Fisheries Service (NMFS) in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531, *et seq*.), and implementing regulations at 50 CFR 402. With respect to designated critical habitat, the following analysis relied only on the statutory provisions of the ESA, and not on the regulatory definition of "destruction or adverse modification" at 50 CFR 402.02.

The essential fish habitat (EFH) consultation was prepared in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 USC 1801, *et seq*.) and implementing regulations at 50 CFR 600. The administrative record for this consultation is on file at NMFS' Idaho State Habitat Office, located in Boise, Idaho.

1.1. Background and Consultation History

In response to widespread mortality of lodgepole pine trees that created a potential fire hazard to private properties in the vicinity of Elk City, Idaho, the NPNF began developing two timber harvest projects (Red Pines Fuel Treatment and Red River Salvage projects) in 2003 for the Red River drainage. The NPNF initially proposed harvest activities to reduce the amount of potential fuels for wildfires, salvage dead and dying trees that retained commercial value as lumber. The NPNF first discussed with NMFS preliminary ideas for developing the projects at a meeting of the North-Central Idaho Level 1 Consultation Team (*ad hoc* team established to streamline consultations and consists of biologists and natural resource specialists from the Nez Perce and Clearwater National Forests, Bureau of Land Management, U.S. Fish and Wildlife Service (USFWS), and NMFS) on July 14, 2003. In that meeting, the Level 1 Team identified sediment, legacy impacts to the streams, and road systems needed for timber harvest as issues affecting project design and fish habitat. After receiving a draft biological assessment (BA) on July 22, 2003, the Level 1 Team continued discussions on the developing Red River Salvage Project throughout the remainder of 2003.

In February 2004, the NPNF notified NMFS that the Red River Salvage Project would be incorporated into the Red Pines Project as a single action that emphasized fuel reduction over timber salvage. They also modified the action to include efforts to offset adverse effects of the action on fish habitat. A draft BA for the combined project was discussed with NMFS at an April 12, 2005, Level 1 Team meeting, where NMFS requested additional information and clarification of the amount of sediment likely to be produced by the proposed action. The NPNF sent a revised draft BA to NMFS on June 30, 2005. The NPNF, USFWS, and NMFS conducted a conference call on July 18, 2005, to discuss the revised draft BA and a graph summarizing sediment from the project. On that conference call, NMFS requested clarification of the proposed action, and asked the NPNF to distinguish those aquatic restoration and mitigation actions that were certain to occur as part of timber harvest activities, from those actions that would occur after timber harvest activities, or would occur only if future funding were available. NMFS received notification via electronic mail from the NPNF on September 9, 2005, that

scheduling of the different types of activities would be described in their Record of Decision as a process where required watershed improvement actions would be completed concurrent with fuel reduction and timber harvest. After resolving the scheduling of mitigation activities, the Level 1 Team reached agreement that the project design and draft BA were ready for formal consultation.

NMFS received a BA and letter requesting formal consultation on the Red Pines Project on October 24, 2005, and formal consultation was initiated on that date. However, the NPNF did not supply information outlining which restoration projects were mandatory and which ones were discretionary until January 10, 2006. The BA concluded that the proposed actions are likely to adversely affect listed Snake River Basin steelhead and adversely affect EFH for Chinook salmon in the Red River drainage. The BA also clearly described adverse effects of the proposed actions on critical habitat. A draft copy of this Opinion was sent to the NPNF on February 14, 2006, and they submitted comments back to NMFS on April 28, 2006.

The Red Pines Project would affect steelhead and Chinook salmon, which are trust resources of the Federal government for the Nez Perce Tribe (Tribe). The proposed project was presented by the NPNF to the Tribe and NMFS at the April 12, 2005, Level 1 Team meeting, where the Tribe raised questions about building temporary roads and increasing sediment in a drainage where sediment levels are already high. A copy of this draft Opinion was electronically mailed to the Tribe on May 9, 2006. The Tribe did not respond to the draft Opinion.

1.2. Proposed Action

The NPNF's stated purpose for the Red Pines Project is to reduce existing and potential forest fuels, reduce the effects of potential large-scale wildfire, improve safety and effectiveness of fire suppression, and contribute to the economic and social well-being of the local community. All timber-related activities would be completed within 7-10 years of project initiation funding. The NPNF separated their restoration activities into three categories: (1) Road-related restoration activities, mine site reclamation, and riparian plantings that would be completed prior to or in conjunction with timber sale actions; (2) road-related restoration activities that are needed for the timber sale activities; and (3) instream and riparian restoration projects that require further design, planning, permits, and additional funding. All of the proposed restoration activities are to be completed within the 10-year timeframe of the timber sale. Only those discretionary activities shown in Appendix A of the Red Pines Final Environmental Impact Statement (FEIS) may not be completed within this 10-year timeframe. The activities will be scheduled and implemented so that a balance will be achieved between vegetation management (including new and temporary roads) and watershed improvement activities.

The Nez Perce Forest Plan (Forest Plan) allows timber management activities to occur in watersheds where streams have sediment levels that exceed Forest Plan standards or objectives as long as the timber management activities are implemented concurrently with improvement efforts that would result in an upward trend in habitat carrying capacity (Gerhardt *et al.* 1991). Upward trend means that stream conditions determined through analysis to be below the Forest

Plan objective will move toward the objective over time. At the conclusion of the project, it must be demonstrable that an improving trend is either in place and will continue, or that an improving trend be in place prior to the initiation of new activities.

The BA states that in order that the NPNF Plan Appendix A direction regarding upward trend, and Forest Plan amendments in the Red Pines Final EIS regarding upward trend, are achieved, the following actions would be implemented: (1) Required watershed improvement actions will be completed under this action concurrent with fuel reduction and timber harvest aspects; (2) completed and uncompleted activities will be tracked and reported to NMFS no later than March 15, annually; and (3) if reports indicate that restoration activities lag behind fuel reduction and timber harvest activities, a course of action will be submitted to NMFS within 30 days of the annual report that would help make up the deficit of restoration activities no later than one year after the report date.

As part of their proposed action, the NPNF will continue long-term monitoring of trends in fish habitat and channel morphology at three sites in the Red River watershed, and continue measurements of stream flow, suspended sediment and bedload sediment at stream gauges in Red River, South Fork Red River and Trapper Creek. The NPNF will also develop and implement a monitoring plan to track project implementation and effects of the action, in conjunction with any monitoring requirements that might arise through this consultation.

The Red Pines project proposal will be consistent with PACFISH requirements. To meet PACFISH riparian management objectives (RMOs), the NPNF established project mitigation and design criteria (MDC) pertaining to timber harvest and fuels treatment to reduce erosion, soil compaction, and excessive disturbances. For the project, the NPNF will maintain PACFISH buffer strips by not removing timber in streamside or wetland Riparian Habitat Conservation Area (RHCAs), except for minimal amounts necessary at temporary road crossings or to facilitate anchoring of cable yarding systems, and as long as doing so does not retard the attainment of RMOs. Also, the NPNF will not harvest any timber from areas with a high landslide prone risk. To further protect slope stability, the NPNF will modify as needed any timber harvest in areas with moderate landslide risk.

1.2.1. Proposed Timber Harvest Activities

The timber harvest activities proposed by the NPNF include 1,541 acres of clearcut harvest and 1,872 acres of shelterwood harvest. Clearcut harvest is the removal of all merchantable timber from the harvest unit, while shelterwood harvest generally leaves 15 to 25 mature trees per acre as shelter and a seed source to establish a new crop of trees. The project also includes 42 acres of precommercial thinning. The proposed logging systems for the timber harvest activities include a total of 1,813 acres by cable systems and 1,600 acres by ground-based removal methods (Table 1). Logging systems are utilized to transport logs to decking areas (“landings”) and eventually loaded onto trucks. In cable yarding, trees are felled and attached to a cable system that moves the tree to the decking area. Generally only one end of the tree is suspended off the ground while the other end drags along the ground. Tie-off trees are usually needed for cable systems, and for safety reasons, these trees are usually felled upon completion of the task.

In ground-based yarding, trees are felled and moved with tracked or wheeled heavy machinery to the deck area. This system usually requires skid trails and results in greater soil disturbance than cable yarding. Steepness of terrain and economics usually dictate which logging system is used.

Table 1. Proposed vegetation treatments and logging systems summarized by subwatershed.

Subwatershed	Clearcut Harvest Acres	Shelterwood Harvest Acres	Precomm. Thinning Acres	Cable (Skyline) Acres	Ground-Based Acres
Dawson Creek	0	9.11	0	9.11	0
Lower Red River	161	578	41.9	574	165
Siegel Creek	142	238	0	164	216
Ditch Creek	0	43.0	0	16.5	27.0
Trail Creek	0	19.6	0	0	19.6
Soda Creek	0	35.0	0	20.4	14.5
Main Red River	410	581	0	388	602
Schooner Creek	95.1	36.0	0	17.3	114
Trapper Creek	176	0	0	156	19.3
Lower SF Red River	268	120	0	247	141
Upper SF Red River	28.0	0	0	11.6	16.4
Little Moose Creek	40.9	0	0	30.1	10.8
Blanco Creek	95.9	38	0	124	9.22
Deadwood Creek	12.6	92	0	4.56	99.7
Red Horse Creek	33.8	32.7	0	24.0	42.5
French Gulch	14.4	5.8	0	0	20.2
Campbell Creek	13.5	19.4	0	0	32.9
Lowest Red River	49.6	24.2	0	24.2	49.7
Red River Total	**1541**	**1872**	**41.9**	**1813**	**1600**

The activities will be scheduled and implemented so that a timing balance will be achieved between vegetation management and watershed improvement activities. The primary project MDCs (as found in Appendix B of the FEIS) relevant to reducing effects from timber harvest are summarized as follows:

- No removal of trees will be allowed in streamside or wetland RHCAs, except at temporary road crossings and to facilitate anchoring of cable yarding systems (MDC #4);

- No timber harvest will occur in high landslide prone areas (generally exceeding 60% slope) and slope stability will be protected in moderate landslide prone areas. Any additional unmapped landslide prone areas found during implementation will either be dropped, or modified with watershed specialist oversight (MDC #6);

- Tractor and/or excavator use will be limited to slopes less than 35% (MDC #8); winter harvest will be allowed only during frozen conditions (MDC #16);

- A Spill Prevention Control and Countermeasures Plan (Spill Plan) will be prepared and implemented to reduce the risk of toxic spills (MDC #20);

- Skid trails, landings, and yarding corridors will be located and designed prior to activities to minimize the area of detrimental soil effects (MDC #C);

- Cable systems will use one-end or full suspension wherever possible to minimize soil disturbance (MDC #E); and

- All mud, soil, and plant parts will be removed from all off road equipment before moving into project area to limit the spread of weeds (MDC #S).

In addition to these prescribed MDCs, the NPNF will also incorporate the use of best management practices (BMPs) and soil and water conservation practices (SWCPs), as appropriate.

1.2.2. Proposed Road Activities

The NPNF proposes to construct 17.68 miles of temporary roads and recondition 77.05 miles of existing roads to facilitate the timber harvest activities. The number of miles by subwatershed for these road activities is shown in Table 2. Temporary road construction involves creating roads to move logged material onto log trucks to access a permanent road. Temporary roads are then decommissioned after their usefulness is over. Road reconditioning involves general road maintenance on an existing road, plus possible upgrades or establishment of stream crossing and drainage structures, cut and fillslope stabilization, addition of surface material, removal of vegetation and debris, and other activities as needed to upgrade the road for hauling.

The primary project MDCs relevant to reducing effects from road activities require:

- No road construction will occur in areas of high landslide hazard, and road construction in areas of moderate landslide risk will be modified as needed to protect slope stability (MDC #6);

- Temporary roads will be built, used, and decommissioned within a 1-3 year period to reduce sediment production (MDC #12);

- New temporary roads will be constructed using minimal road widths and out-sloped surface drainage (MDC #13);

- Sediment and erosion control measures will be used as needed when constructing, or reconstructing roads to protect fish and water quality (MDC #17);

- Stream crossing placements will approximate natural channel and passage needs; new structures will consider and give preference to open-bottom arches, bridges and oversized culverts (MDC #19);

- A Spill Plan will be prepared and implemented to reduce the risk of toxic spills (MDC #20);

- Approved native plant species or non-native annual species will be applied to meet erosion control needs (MDC #42);

- All rock used for surfacing will be certified as free of noxious weed seed (MDC #44);

- Temporary roads will be closed to public motorized use, except as specifically authorized (MDC #L);

- Excavated skid trails and landings will be scarified and recontoured to restore slope hydrology and soil productivity as appropriate (MDC # G);

- Non-excavated compacted or entrenched skid trails and landings will be decompacted to restore soil permeability (MDC #H); and

- All mud, soil, and plant parts will be removed from all off road equipment before moving into project area to limit the spread of weeds (MDC #S).

In addition to these measures, the NPNF will follow their programmatic BAs for trail maintenance (USDA Forest Service 1999a) and road management (USDA Forest Service 1999b).

Table 2. Proposed road activities summarized by subwatershed.

Subwatershed	Temp Road Construction Miles	Road Recondition Miles	Subwatershed	Temp Road Construction Miles	Road Recondition Miles
Dawson Creek	0.01	1.34	Lower SF Red River	0.97	6.25
Lower Red River	4.77	15.3	Upper SF Red River	0	0.64
Siegel Creek	1.18	9.27	Little Moose Creek	0.55	1.5
Ditch Creek	0.88	0.01	Blanco Creek	0.18	4.75
Trail Creek	0	5.04	Deadwood Creek	0	4.74
Soda Creek	0	1.3	Red Horse Creek	0.23	3.75
Main Red River	7.33	9.39	French Gulch	0	0.46
Schooner Creek	0.86	5.00	Campbell Creek	0	0.58
Trapper Creek	0.71	5.50	Lowest Red River	0	1.55
Pat Brennan Cr.	0	0.68	**Red River Total**	**17.68**	**77.05**

1.2.3. Slash Treatment and Prescribed Fire

Following timber harvest, the slash will be burned to further reduce the risk of wildfire. Burn prescriptions call for approximately 1,686 acres of underburning, 220 acres of broadcast burning, 1,505 acres of excavator pile burning, and 42 acres of hand pile burning (Table 3). Underburning is defined as prescribed fire that only burns ground and ladder fuel, usually the burning of small live trees and/or brush and the natural accumulation of dead organic material under a live canopy. Broadcast burning is a prescribed fire, intentionally set, that burns a designated area without the need to pile the slash. Pile burning is the burning of slash piles that

have been stacked by excavator, bulldozer, or by hand. The primary project MDCs relevant to reducing effects from fuel treatments require:

- Fuels will not be ignited within RHCAs, but fire may be allowed to back into these areas since fire intensity will be low and not result in loss of canopy or exposure of bare soil (MDC #5);

- No fuel reduction activities will occur in old growth or old growth replacement areas (MDC #7);

- Site-specific review of treatment units will be completed prior to implementation to identify extent of detrimental soil disturbance (MDC #8);

- Broadcast burning will be applied in preference to excavator pile wherever practical to reduce soil damage (MDC #11);

- Fuel reduction activities will be restricted when soils are wet to prevent rutting, displacement, or erosion (MDC #B);

- Equipment traffic, excessive piling, and redistribution of slash on excavator pile units will be minimized; numerous small piles will be preferred over a few large piles to avoid nutrient loss and soil damage (MDC #D);

- Slash will be scattered over recontoured and decompacted areas on skid trails and landings (MDC #I); and

- All mud, soil, and plant parts will be removed from all off road equipment before moving into project area to limit the spread of weeds (MDC #S).

Table 3. Proposed post-harvest treatment acreage by subwatershed

Subwatershed	Underburn Acres	Broadcast Burn Acres	Excavator Pile Acres	Hand Pile Acres
Dawson Creek	9.11	0	0	0
Lower Red River	508	73.0	158	41.9
Siegel Creek	183	10.5	187	0
Ditch Creek	16.5	0	27.0	0
Trail Creek	0	0	19.6	0
Soda Creek	20.4	0	14.5	0
Main Red River	337	51.0	602	0
Schooner Creek	17.3	0	114	0
Trapper Creek	157	0	19	0
Lower SF Red River	279	0	109	0
Upper SF Red River	28.0	0	0	0
Little Moose Creek	0	30.1	10.8	0
Blanco Creek	68.6	55.7	9.22	0
Deadwood Creek	14.2	0	90.1	0
Red Horse Creek	24.0	0	42.5	0
French Gulch	0	0	20.2	0
Campbell Creek	0	0	32.9	0
Lowest Red River	24.2	0	49.7	0
Red River Total	**1,686**	**220**	**1,505**	**41.9**

1.2.4. Proposed Watershed Restoration Activities

The NPNF is also consulting on 103.73 miles of road decommissioning, 170.2 acres of soil restoration, 60 stream crossing improvements, and 26.1 acres of inactive mine rehabilitation (Table 4). Road decommissioning includes activities that result in the stabilization and restoration of unneeded roads to a more natural state. Decommissioning can range from full recontouring using heavy equipment to simple abandonment. Soil restoration usually involves the use of wheeled heavy equipment to dig up, mix, or otherwise decompact soils affected from past activities. It may also include placement of woody material to enhance soil productivity. Stream crossing improvements include culvert upgrades, removal of wooden culverts, repair of failed structures, or simply removing the structure and recontouring the stream channel to a more natural condition. Inactive mine rehabilitation would stabilize and revegetate disturbed soil areas (including noxious weed infestations, mine tailings, and mining access roads) to prevent future degradation of the sites. Stabilization of these sites may include recontouring with heavy equipment operating within streamside RHCAs, but not immediately adjacent to streams or within stream channels. Implementation of the required restoration activities will be completed within the time frame of the timber sale contract.

Table 4. Proposed Watershed Restoration Activities by Subwatershed. *

Subwatershed	Road Decommission Miles		Soil Restoration Acres		Inactive Mine Rehabilitation Acres		Stream Crossing Improvements	
	Req.	**Dis.**	**Req.**	**Dis.**	**Req.**	**Dis.**	**Req.**	**Dis.**
Dawson Cr	7.82	0	18.8	0	0	0	1	4
Lower Red River	18.76	0	30.4	0	0	0	6	4
Siegel Cr	0.24	0	2.5	0	4.5	0	4	2
Ditch Cr	5.81	0	14.6	0	3.6	0	0	0
Trail Cr	2.85	0	3.4	0	0	0	0	2
Baston Cr	0.13	0	0	0	0	0	0	0
Soda Cr	4.72	0	10.8	0	0	0	15	0
Main Red River	13.98	0	28.3	0	0	0	1	1
Schooner Cr	1.37	0	5.2	0	0	0	0	1
Trapper Cr	2.01	0	2.8	0	0	0	0	0
Pat Brennan Cr	2.11	0	4.6	0	0	0	0	0
Lower SF Red R	3.55	0	3.7	0	0	0	1	1
Upper SF Red R	4.69	0	2.8	0	0	0	0	1
MF Red River	0.53	0	0	0	7.0	0	0	0
Moose Butte Cr	0.26	0	1.0	0	0	0	4	0
Little Moose Cr	11.61	0	14.4	0	0	0	4	0
Blanco Cr	4.39	0	7.5	0	0	0	0	1
Deadwood Cr	9.95	0	13.0	0	8.0	0	3	0
Red Horse Cr	0	0	0	0	0	0	1	0
French Gulch	1.21	0	0	0	0	0	0	0
Campbell Cr	1.09	0	1.0	0	0	0	2	1
Lowest Red R	6.65	0	5.4	0	3.0	0	0	0
Total Red River	**103.73**	**0**	**170.2**	**0**	**26.1**	**0**	**42**	**18**

* Req. = required under the proposed action; Dis. = discretionary under the proposed action.

The primary project MDCs relevant to reducing effects from these watershed improvement projects include:

- Sediment and erosion control measures will be used as needed when decommissioning roads and improving stream crossings to protect fish and water quality (MDC #17);

- Activities in fish-bearing streams will be allowed between July 1 and August 15 (or adjusted with approval from Level 1 Team) to avoid sediment deposition on emerging steelhead or Chinook redds (MDC #18);

- Stream crossing placements will approximate natural channel and passage needs; new structures will consider and give preference to open-bottom arches, bridges and oversized culverts (MDC #19);

- A Spill Plan will be prepared and implemented to reduce the risk of toxic spills (MDC #20);

- If electrofishing is necessary, NMFS electrofishing guidelines will be followed (MDC #A);

- Watershed restoration activities will be restricted when soils are wet to prevent rutting, displacement, or erosion (MDC #B);

- Areas of intact functioning riparian vegetation will be retained where possible during stream restoration work (MDC #J);

- Soil restoration areas will be stabilized using erosion barriers, mulch, and slash as needed, and implemented concurrently as work is completed as negotiated under contract; soil restoration will be completed within an activity area within one operating season and areas will be planted in subsequent seasons as needed to establish adequate ground cover (MDC #K); and

- All mud, soil, and plant parts will be removed from all off road equipment before moving into project area to limit the spread of weeds (MDC #S).

1.2.5. Proposed Instream Construction Activities

The NPNF is also consulting on riparian and instream work, including 39 miles of large woody debris (LWD) placement, 31.08 miles of riparian improvement, 8.0 miles of existing instream structure maintenance, 2.0 miles of instream improvements, and 10 acres of sediment trap decommissionings. The required activities versus discretionary activities are shown in Table 5. Placement of LWD would utilize heavy equipment to place dead trees and root wads in the stream. In most cases, equipment would be limited to the stream bank, but may need to cross the stream at some locations. Riparian improvements generally involve riparian fencing and plantings. Fish structure maintenance may include removal, replacement, upgrading, and/or repositioning of existing structures. Heavy equipment use would generally be limited to the streambank, but may need to enter the stream at some locations. Instream improvements include reshaping of the valley stream bottom, channel realignment, fish structure construction, streambank stabilization, and decommissioning of streamside roads. Heavy equipment would be used adjacent to and within the stream channel. Sediment trap decommissioning involves the removal or alteration of the existing structure and the possible construction of a short channel through the trapped sediment. Heavy equipment may be used to remove embedded log weirs, or the log weirs may be notched by hand. Whenever appropriate, sediment trap decommissioning would occur in conjunction with road decommissioning so heavy equipment would need to access the area only once. Implementation of the required restoration activities will be completed within the time frame of the timber sale contract.

The project MDCs relevant to reducing effects from the riparian and instream construction activities require:

- Activities in fish-bearing streams will be allowed between July 1 and August 15 (or adjusted with approval from Level 1 Team) to avoid sediment deposition on emerging steelhead or Chinook redds (MDC #18);

- A Spill Plan will be prepared and implemented to reduce the risk of toxic spills (MDC #20);

- During instream habitat improvement activities, tree felling in RHCAs will occur only where it will not affect RMOs for shade and LWD recruitment (MDC #21);

- Riparian fencing will be designed to accommodate big game (MDC #40);

- If electrofishing is necessary, NMFS electrofishing guidelines will be followed (MDC #A);

- Watershed restoration activities will be restricted when soils are wet to prevent rutting, displacement, or erosion (MDC #B);

- Areas of intact functioning riparian vegetation will be retained where possible during stream restoration work (MDC #J); and

- All mud, soil, and plant parts will be removed from all off road equipment before moving into project area to limit the spread of weeds (MDC #S).

Table 5. Proposed Aquatic Restoration by Subwatershed. *

Subwatershed	LWD Placement Miles		Riparian Improvement Miles		Structure Maintenance Miles		Instream Improvement Miles		Sediment Trap Removal Acres	
	Req.	**Dis.**	**Req.**	**Dis.**	**Req.**	**Dis.**	**Req.**	**Dis.**	**Req.**	**Dis.**
Dawson Cr	0	0	0	0	0	0	0	0	0	1.0
Lower Red River	10.0	0	0	10.0	0	0	2.0	0	0	0
Siegel Cr	3.0	0	0	0	0	0	0	0	0	0
Ditch Cr	0	0	2.0	0	0	0	0	0	0	0
Trail Cr	0	0	0	0	0	0	0	0	0	0
Baston Cr	0	0	0	0	0	0	0	0	0	0
Soda Cr	0	0	0	0	0	0	0	0	0	0
Main Red River	10.0	0	6.0	0	6.0	0	0	0	0	0
Schooner Cr	1.0	0	1.08	0	0	0	0	0	1.0	0
Trapper Cr	0	0	0	0	0	0	0	0	0	0
Pat Brennan Cr	0	0	0	0	0	0	0	0	0	0
Lower SF Red R	2.0	0	1.0	0	0	0	0	0	0	0
Upper SF Red R	0	0	0	0	0	0	0	0	0	0
MF Red River	0	0	0	0	0	0	0	0	0	0
Moose Butte Cr	2.0	0	0	0	2.0	0	0	0	4.0	0
Little Moose Cr	2.0	0	2.0	0	0	0	0	0	4.0	0
Blanco Cr	0	0	0	0	0	0	0	0	0	0
Deadwood Cr	1.0	0	1.0	0	0	0	0	0	0	0
Red Horse Cr	0	0	0	0	0	0	0	0	0	0
French Gulch	0	0	1.0	0	0	0	0	0	0	0
Campbell Cr	0	0	0	0	0	0	0	0	0	0
Lowest Red R	7.0	1.0	7.0	0	0	0	0	0	0	0
Total Red River	**38.0**	**1.0**	**21.08**	**10.0**	**8.0**	**0**	**2.0**	**0**	**9.0**	**1.0**

* Req. = required under the proposed action; Dis. = discretionary under the proposed action.

1.2.6. Summary of Proposed Activities

Implementation of the Red Pines Project is proposed to begin in the summer of 2006 and be completed by 2015. Temporary road use will be for 1 to 3 years from the date of their construction. Timber harvest and restoration activities will occur simultaneously for the life of the project. Most road improvements will occur before timber harvest, so logging trucks can use the roads during the timeframe of the sales.

Conservation measures, or the MDCs described in Appendix B of the BA as part of the proposed action, are intended to reduce adverse effects on listed species and their habitats. NMFS regards those conservation measures as integral components of the proposed action and expects that all proposed project activities will be completed consistent with those measures. NMFS has completed the effects analysis accordingly. Any project activity that deviates from these

conservation measures will be beyond the scope of this consultation, will not be exempted from the prohibition against take as described in the attached Incidental Take Statement, and will require further consultation to determine what effect the modified action may have on listed species or critical habitat.

1.3. Action Area

'Action area' means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area comprises 22 subwatersheds of Red River and the mainstem South Fork Clearwater River (SFCR) extending to the Forest Boundary below the Mt. Idaho Bridge. The hydrologic unit codes encompassing the action area are 1706030507 (Red River) and 1706030504 (upper SFCR).

Snake River steelhead use the action area as spawning, rearing, and migratory habitat. Juvenile steelhead rear in both watersheds for several years before migrating downriver to the Pacific Ocean. Adult steelhead also use these rivers and their tributaries for spawning. Both watersheds are designated critical habitat for steelhead (70 FR 52630). The action area is also designated as EFH for Chinook salmon (PFMC 1999). Table 6 lists the Federal Register notices for the final rules for the species considered in this consultation.

The Snake River Basin steelhead (*Oncorhynchus mykiss*) distinct population segment (DPS) is present and listed in the action area. Snake River spring/summer Chinook salmon are present in the action area, but are not listed under the ESA. NMFS believes the native population of spring/summer Chinook salmon in the SFCR was extirpated by the presence of the Lewiston and Harpster Dams in the 1930s. Chinook salmon EFH is designated in the action area.

Table 6. Federal Register notices for final rules that list threatened and endangered species, designate critical habitats, or apply protective regulations to listed species considered in this consultation.

Species	Listing Status	Critical Habitat	Protective Regulations
Steelhead (*O. mykiss*)			
Snake River Basin	T 1/05/06; 71 FR 834	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

Note: Listing status: 'T' means listed as threatened under the ESA; 'E' means listed as endangered.

2. ENDANGERED SPECIES ACT

The ESA establishes a national program to conserve threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a) (2) of the ESA requires Federal agencies to consult with USFWS, NMFS, or both, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely

modify or destroy their designated critical habitats. Section 7(b) (4) requires the provision of an incidental take statement that specifies the impact of any incidental taking and includes reasonable and prudent measures (RPMs) to minimize such impacts.

2.1. Biological Opinion

This Opinion presents NMFS' review of the status of each listed species of Pacific salmon and steelhead[1] considered in this consultation, the condition of designated critical habitat, the environmental baseline for the action area, all the effects of the action as proposed, and cumulative effects (50 CFR 402.14(g)). For the jeopardy analysis, NMFS analyzes those combined factors to conclude whether the proposed action is likely to appreciably reduce the likelihood of both the survival and recovery of the affected listed species.

The critical habitat analysis determines whether the proposed action will destroy or adversely modify designated critical habitat for listed species by examining any change in the conservation value of the essential features of that critical habitat. This analysis relies on statutory provisions of the ESA, including those in section 3 that define "critical habitat" and "conservation," in section 4 that describe the designation process, and in section 7 that sets forth the substantive protections and procedural aspects of consultation. The regulatory definition of "destruction or adverse modification" at 50 CFR 402.02 is not used in this Opinion.

2.1.1. Status of the Species and Critical Habitat

This section defines the biological requirements of each listed species affected by the proposed action, and the status of each designated critical habitat relative to those requirements. Listed species facing a high risk of extinction and critical habitats with degraded conservation value are more vulnerable to the aggregation of effects considered under the environmental baseline, the effects of the proposed action, and cumulative effects.

2.1.1.1. Status of the Species

NMFS reviews the condition of the listed species affected by the proposed action using criteria that describe a 'viable salmonid population' (VSP) (McElhany *et al*. 2000). Attributes associated with a VSP include abundance; productivity, spatial structure, and genetic diversity that maintain its capacity to adapt to various environmental conditions and allow it sustain itself in the natural environment. These attributes are influenced by survival, behavior, and experiences throughout the entire life cycle, characteristics that are influenced, in turn, by habitat and other environmental conditions.

1 "An 'evolutionarily significant unit' (ESU) of Pacific salmon (Waples 1991) and a 'distinct population segment' (DPS) of steelhead (final steelhead FR notice) are considered to be 'species,' as defined in section 3 of the ESA."

To be considered viable, with a negligible risk of extinction due to threats from demographic variation, local environmental variation, and genetic diversity changes over a 100-year time period, a species should have the following characteristics. It should contain multiple populations so that a single catastrophic event is less likely to cause the species to become extinct, and so that the species may function as a "metapopulation" necessary to sustain population-level extinction/recolonization processes. Multiple populations within a species also increase the likelihood that a diversity of phenotypic and genotypic characteristics will be maintained, thus allowing natural evolutionary processes to operate and increase the species' long-term viability. Some of the populations should be relatively large and productive to further reduce the risk of extinction in response to a single catastrophic event that affects all populations. If a species consists of only one population, that population must be as large and productive ("resilient") as possible. Some populations should be geographically widespread to reduce the risk that spatially correlated environmental catastrophes that will drive the species to extinction. Other populations should be geographically close to each other to increase connectivity between existing populations and encourage metapopulation function. Populations with diverse life histories and phenotypes should be maintained to further reduce the risk of correlated environmental catastrophes or changes in environmental conditions that occur too rapidly for an evolutionary response. This genetic diversity allows natural evolutionary processes to operate within a species. Finally, evaluations of species status should take into account uncertainty about species-level processes. Our understanding of spatial and temporal processes is limited such that the historic number and distribution of populations serve as a useful goal in maintaining species' viability that are believed to have been historically self-sustaining.

Steelhead spend 1 to 4 years in the ocean before returning to fresh water to spawn. Snake River steelhead exhibit two distinct life forms, identified as "A-run" and "B-run" fish, which are distinguished by differences in size, run timing, and length of ocean residence. A-run fish typically reside in the ocean for 1 year, while B-run fish predominantly reside in the ocean for 2 years. As a result, B-run steelhead are larger than A-run fish. The differences in the two fish stocks represent an important component of phenotypic and genotypic diversity of the Snake River Basin steelhead, through the asynchronous timing of ocean residence, segregation of spawning areas, and possible differences in the habitats of the fish in the ocean. B-run fish are the dominant run type in the upper SFCR.

Adult Snake River steelhead return to mainstem rivers from late summer through fall, where they feed for several months before moving upstream into smaller tributaries. The majority of fish disperse into tributaries from March through May, depending on elevation. Spawning begins shortly after fish reach spawning areas, which is typically during a rising hydrograph and prior to peak flows (Thurow 1987). Steelhead typically select spawning areas at the downstream end of pools, in gravels ranging in size from approximately 0.5 to 4.5 inches in diameter (Pauley *et al.* 1986). Juveniles emerge from redds in 4 to 8 weeks, depending on temperature. After emergence, fry have poor swimming ability. They move into shallow, low velocity areas in side channels and along channel margins to escape high velocities and predators (Everest and Chapman 1972), and progressively move toward deeper water as they grow in size (Bjornn and Rieser 1991). Juveniles typically remain in fresh water for 2 or 3 years, or longer, depending on temperature and growth rate (Mullan *et al.* 1992). Smolts migrate downstream during spring runoff, which occurs from April to mid-June in the Snake River Basin.

Counts of wild and hatchery-origin steelhead returning to the Snake River Basin declined sharply in the early 1970s, increased modestly from the mid 1970s through the 1980s, and declined again during the 1990s (NPPC 2003). The longest consistent indicator of steelhead abundance in the Snake River Basin is derived from counts of natural-origin steelhead at the uppermost dam on the lower Snake River. According to these estimates, the abundance of natural-origin summer steelhead at Lower Granite Dam declined from a 4-year average of 58,300 in 1964 to a 4-year average of 8,300, ending in 1998. The most recent 4-year average of wild fish (2001-2004) is 46,652 adults (USACE 2005), which makes up only 23% of the total adult returns. These large returns are thought to be largely a result of cyclic oceanic and climatic conditions favorable to anadromous fish (Marmorek and Peters 1998). Researchers have not yet determined if the recent population increases represent a shift in the population growth rates (due to a corresponding shift in climatic conditions), or if the change is a temporary phenomenon. Factors other than ocean conditions, such as downstream passage conditions for smolts, predation, fishing pressure, and habitat conditions in rearing areas also vary from year to year, and may offset gains from favorable ocean conditions in some years, or work synergistically in others.

Interim recovery numbers in the SFCR Basin for Snake River steelhead are 3,400 naturally produced adult spawners (NMFS 2002). NMFS uses lambda (λ) to represent the long-term population growth rate. In order to attain interim recovery numbers, λ must be greater than one, indicating an increasing population. From 1965 to 2000, the estimated population growth rate for the Snake River steelhead as a whole was 0.96, as a best-case scenario, assuming no reproduction by hatchery fish (McClure *et al.* 2003). The 95% confidence interval indicates the growth rate was between 0.84 and 1.10. A population with a linear growth rate of 0.96 would shrink by 50% in 17 years. Since 2000, average returns of Snake River steelhead are 2.32 times higher than the average returns from 1995 to 1999, but populations have declined the last three years, with λ values below 0.85 in 2002, 2003, and 2004 (USACE 2005). Based on information from the past 40 years, there is a 65% chance that the Snake River steelhead species is declining ($\lambda<1$) and a 23% chance that the species is declining rapidly ($\lambda<0.9$) (McClure *et al.* 2003). McClure *et al.* (2003) also state that "given the trends in counts at Lower Granite Dam, actual risks faced by this [Snake River Basin steelhead] are likely to be larger than is apparent from the stock-level data."

The mean growth rate for Snake River A-run steelhead is 0.97 and 0.93 for B-run steelhead. A 4 percent increase in the growth rate for the Snake River steelhead as a whole is needed to prevent the likelihood of extinction in 50 years; however, an increase of 7 percent is needed to sustain B-run steelhead for the next 50 years (McClure *et al.* 2003).

A population's spatial structure is made up of both the geographic distribution of individuals in the population and the processes that generate that distribution (McElhaney *et al.* 2000). Snake River steelhead are widely distributed, but at moderately to severely depressed levels throughout most of the present range. In general, spatial structure is mostly intact within the remaining range of the Snake River steelhead, with a few notable exceptions where potential habitat is inaccessible due to water diversions, mines, impassable culverts, or dams, or altered so severely that the habitat is severely degraded. Patterns of usable/unusable areas have not changed significantly since the 1970s. Within the action area, steelhead are widely distributed in both

Red River and the SFCR and their tributaries. However, there are stream stretches that are now blocked by poorly placed and ill-constructed culverts, and much of the action area has been historically dredge-mined to the point that floodplain access and habitat have been greatly reduced.

Snake River steelhead exhibit a wide range of genetic and phenotypic variability across the range of the species. Dispersal processes that maintain diversity are largely intact, with some local exceptions. Variation in traits such as run timing, age structure, size, fecundity, morphology, behavior, and molecular genetic characteristics appears to be influenced by hatchery fish in certain areas, while some areas appear to have little hatchery influence. Historically, the SFCR may have maintained a genetically unique stock of steelhead, but hatchery supplementation has probably clouded the lines of genetic distinction throughout the Clearwater subbasin (USDA Forest Service 1998). The Interior Columbia Basin Technical Recovery Team (TRT) segregated the Snake River steelhead into 24 subpopulations, placed into five major groupings (TRT 2003). The subpopulations and groupings are identified by genetic characteristics and drainage boundaries. The Snake River steelhead in the action area belong to the SFCR subpopulation, and include those from Mill Creek upstream. The SFCR was historically blocked from 1949 to 1963. The current population is derived from resident rainbow trout, juvenile stocking from Dworshak Hatchery stock, adults trapped at Lewiston Dam (Kiefer *et al*. 1992), and possibly residualized (resident) endemic *O. mykiss*.

2.1.1.2. Status of the Critical Habitat

NMFS reviews the status of critical habitat affected by the proposed action by examining the condition and trends of primary constituent elements (PCEs) throughout the designated area. Snake River steelhead critical habitat has been designated within the action area. The PCEs consist of the physical and biological elements identified as essential to the conservation of the listed species in the documents that designate critical habitat. These PCEs include sites essential to support one or more life stages of the species (sites for spawning, rearing, migration and foraging) and contain physical or biological features essential to its conservation, for example, spawning gravels, water quality and quantity, side channels, and forage species (See Table 7).

The specific types of sites and their associated features as identified in the September 2, 2005, designation of critical habitat (70 FR 52630) for Snake River steelhead include: (1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development; (2) freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; and (3) freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

Table 7. Types of sites and essential physical and biological features designated as PCEs, and the species life stage each PCE supports.

Site	Essential Physical and Biological Features	ESA-listed Species Life Stage
Snake River Steelhead[a]		
Freshwater spawning	Water quality, water quantity, and substrate	Spawning, incubation, and larval development
Freshwater rearing	Water quantity & floodplain connectivity to form and maintain physical habitat conditions	Juvenile growth and mobility
	Water quality and forage[b]	Juvenile development
	Natural cover[c]	Juvenile mobility and survival
Freshwater migration	Free of artificial obstructions, water quality and quantity, and natural cover[c]	Juvenile and adult mobility and survival

a Additional PCEs pertaining to estuarine, nearshore, and offshore marine areas have also been described for Snake River steelhead. These PCEs will not be affected by the proposed action and have therefore not been described in this Opinion.
b Forage includes aquatic invertebrate and fish species that support growth and maturation.
c Natural cover includes shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

At the time each habitat area was designated or proposed as critical habitat, that area contained one or more PCEs within the acceptable range of values required to support the biological processes for which the species use that habitat. The PCEs found within the action area that will be affected by this project include sites for freshwater spawning, rearing, migration, and foraging. In Red River, the SFCR, and their tributaries, there are numerous stream reaches suitable to support the biological processes for adult, juvenile, fry, and egg life stages of Snake River steelhead. However, all of the PCEs have been severely degraded by a combination of legacy mining impacts, timber harvest, road building, and recreational pursuits. The habitat conditions of the Red River and upper SFCR watersheds are further discussed within section 2.1.2 on the Environmental Baseline.

2.1.2. Environmental Baseline

'Environmental baseline' includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02). For projects that are ongoing actions, the effects of future actions over which the Federal agency has discretionary involvement or control will be analyzed as 'effects of the action.'

NMFS describes the environmental baseline in terms of the biological requirements for habitat features and processes necessary to support life stages of Snake River steelhead within the action

area. When the environmental baseline departs from those biological requirements, the adverse effects of a proposed action on the species or its habitat are more likely to jeopardize the listed species or result in destruction or adverse modification of critical habitat (NMFS 1999).

The biological requirements of salmon and steelhead vary depending on the life history stage and the natural range of variation present within that system (Groot and Margolis 1991; NRC 1996; Spence *et al.* 1996). During spawning migrations, adult salmon require clean water, cool temperatures, access to thermal refugia, dissolved oxygen levels near 100% saturation, low turbidity, adequate flows and depths to allow passage over barriers to reach spawning sites, and sufficient holding and resting sites. Anadromous fish select spawning areas based on species-specific requirements of flow, water quality, substrate size, and groundwater upwelling. Embryo survival and fry emergence depend on substrate conditions (e.g., gravel size, porosity, permeability, and oxygen concentrations), substrate stability during high flows, and water temperatures of 55.4°F or less. Parr densities in natural production areas have been substantially below estimated capacity (Hall-Griswold and Petrosky 1996). Habitat requirements for juvenile rearing include seasonally suitable microhabitats for holding, feeding, and resting. Migration of juveniles to rearing areas, whether the ocean, lakes, or other stream reaches, requires unobstructed access to these habitats. Physical, chemical, and thermal conditions may all impede migrations of adult or juvenile fish.

Pool quantity and quality, active and potential LWD, sediment deposition, fish passage, and stream shading are problematic in both watersheds, and therefore the NPNF is attempting to improve these parameters with their restoration package. Direct habitat improvements may be the best way to improve existing conditions in the action area since rearing habitat is limiting.

Snake River Basin steelhead reside in and migrate through the action area. Thus, for the action area, the biological requirements for steelhead are the habitat characteristics that would support successful spawning, rearing, and migration of fry, juveniles, smolts, and adults.

2.1.2.1. Red River

Red River has a watershed of approximately 103,348 acres and is one of the main tributaries to the SFCR. Red River flows from an elevation of 6,800 feet at its headwaters near the Dixie summit to 3,900 feet at the confluence with the SFCR. Red River provides spawning, rearing, and migratory habitat for ESA-listed Snake River steelhead. It also provides habitat for non-listed spring/summer Chinook salmon. A Chinook acclimation facility, operated by the Idaho Department of Fish and Game (IDFG) is located near the confluence of main Red River and the SFCR near the U.S. Forest Service Red River administrative site. The Red River Wildlife Management Area, also managed by the IDFG, is located in the meadow sections along lower Red River. National Forest lands comprise about 99,458 acres of the Red River watershed (96%); private lands, primarily situated along the meadows, account for approximately 950 acres.

The topography is generally rolling hills, especially near ridge tops, while slopes near river and stream margins are steeper in some locations. The majority of the Red River watershed is

comprised of low relief landscapes, and a low occurrence of mass erosion and debris torrents is reflected for most sites in the Red Pines Project area. Significant portions of most tributaries to Red River have low gradient reaches accessible to salmonids. Many of these reaches are in the lower portions of these tributaries and occur on lands in private ownership. The lowest reaches of the tributaries and Red River mainstem offer preferred spawning and rearing habitat for anadromous salmonids, particularly Chinook salmon. Juvenile steelhead also use these areas for spawning and rearing, as well as the higher gradient reaches in lower order streams.

The NPNF BA included a Matrix of Pathways and Indicators (MPI) (NMFS 1996) to describe the baseline habitat condition for the Red River watershed. The BA grouped the indicators into six categories: (1) Sediment; (2) streamflow/watershed condition; (3) riparian/channel processes; (4) temperature; (5) instream habitat/habitat refugia; and (6) others.

2.1.2.1.1. Sediment Accelerated sediment yield sediment and altered hydrologic regimes due to high road density, heavy timber harvest, dredge mining, and in some cases, heavy livestock grazing have resulted in a reduction in habitat complexity, large deep pools, and reduction in the amount and quality of overwintering habitat. Through much of the mainstem Red River and the low gradient reaches of most tributaries, high sediment deposition is an ever-present and defining characteristic of instream habitat.

Low gradient reaches are also depositional areas for sediment and large wood (Montgomery and Buffington 1993). As a result, these channel types are most responsive to management activities (Rosgen 1996). The moderate gradient (2.0 – 3.9% gradient, B-channel types), perennial reaches are primarily wood and fine sediment transport zones, are moderately to highly productive for steelhead, and highly productive for macroinvertebrates and amphibians (Bury 1988). In headwater areas, moderate gradient reaches are most commonly boulder formed step-pool channels and are resistant to management changes (Rosgen 1996; Montgomery and Buffington 1993). An estimated 21% of all stream channels in the Red River watershed exhibit stream reaches with moderate gradients. High gradient perennial reaches (4.0 – 9.9% A-channel types) are transport zones for wood and sediment and are highly productive for amphibians and macroinvertebrates.

The environmental baseline for sediment indicators was described in Chapter 3 (Red River) of the South Fork Clearwater Subbasin BA (USDA Forest Service 1999c). Baseline indicators were rated high, moderate, and low and were summarized in Table 16 of the BA. Sediment yield was rated low, indicating that base yields have been elevated significantly above natural levels, even at the 5th code hydrologic unit code (HUC) scale. In-channel sediment indicators, which include cobble embeddedness, percent surface fines, and percent fines per depth, were also rated low. Low ratings suggest cobble embeddedness levels of greater than 30%, percent surface fines greater than 30%, and fines by depth greater than 25%. The baseline condition of the sediment indicators ranged from 10% to 39% sediment yield over base, 27% to 64% cobble embeddedness, and 33% to 100% surface fines for the Red River subwatersheds (Table 8). Red River and several of its tributaries are listed as water quality limited segments for sediment.

Table 8. Baseline Condition of Sediment Indicators for the Red River Subwatersheds

Subwatershed	Sediment Yield (% Over Base)	Cobble Embeddedness (%)	Percent Surface Fines
Dawson Creek	39	55	No data
Lower Red River	22	31	54
Siegel Creek	23	64	No Data
Ditch Creek	26	62	60
Trail Creek	14	45	No data
Soda Creek	22	40	No data
Main Red River	20	45	50
Schooner Creek	22	50	No data
MF Red River	10	30	No data
Trapper Creek	11	38	12
Pat Brennan Creek	14	50	No data
Lower SF Red River	15	45	78
Upper SF Red River	10	27	67
Little Moose Creek	39	55	100
Moose Butte Creek	36	60	100
Blanco Creek	37	50	No data
Deadwood Creek	34	50	No data
Red Horse Creek	13	52	33
French Gulch	17	50	No data
Campbell Creek	26	43	No data
Lowest Red River	23	50	No data

2.1.2.1.2. Streamflow and Watershed Conditions. Equivalent Clearcut Area (ECA) is often used as a surrogate indicator for peak/base flow. The ECA reflects changes in water yield based on reductions in forest canopy. Additional factors affecting water yield include compacted surfaces due to roads, skid trails, and landings. The ECA has been affected by past timber harvest and road construction. These activities have left a legacy of compacted soils that are currently unproductive and inhibit infiltration. Subwatersheds range from a low of 4 percent ECA to relatively high ECAs ($\geq$15 percent) for Dawson, Little Moose, Blanco, and Deadwood Creeks (Table 9).

High road densities exist throughout many Red River subwatersheds, and road density is relatively high even at the Red River 5th HUC scale. There are currently 3.6 mi/mi^2 of roads in the Red River watershed, with much of Forest Service Roads (FSRs) 222 and 234 located adjacent to Red River (Table 9). Streamside road densities range from 1.9 to 6.8 mi/mi^2 and averages 3.5 mi/mi^2 for the entire watershed. Roads existing on landslide prone areas total 1.4 miles for the entire Red River watershed. High-risk road/stream crossings are common throughout the watershed, with many old roads containing failed bridges and log culverts. In addition to providing chronic sediment yields, high risk crossings could fail during any high water event, resulting in large amounts of sediment delivered to the stream and routed downstream to Red River.

Table 9. Baseline condition of streamflow/watershed condition indicators in Red River subwatersheds.

Subwatershed	Equivalent Clearcut Area (%)	Watershed Road Density (mi/mi^2)	Streamside Road Density (mi/mi^2)	Road on Landslide Prone (Miles)	Road/ Stream Crossings (Number)
Dawson Creek	34	5.7	5.4	0	1
Lower Red River	8	4.9	4.1	0.2	7
Siegel Creek	8	3.2	2.7	0.2	8
Ditch Creek	13	4.2	3.4	0	7
Trail Creek	4	2.2	2.3	0.1	9
Soda Creek	12	3.5	3.0	0	1
Main Red River	5	3.0	3.0	0.1	7
Schooner Creek	11	3.9	2.4	0	7
Trapper Creek	8.0	2.6	1.9	0.1	4
Lower SF Red River	8.0	4.2	5.8	0.1	3
Upper SF Red River	8.0	3.3	3.2	0.1	8
Little Moose Creek	15	5.1	5.1	0.1	7
Blanco Creek	18	5.3	3.4	0	11
Deadwood Creek	16	6.6	5.4	0.2	9
Red Horse Creek	6.0	2.1	2.1	0	8
French Gulch	13	2.8	2.1	0	4
Campbell Creek	13	3.7	2.9	0	11
Lowest Red River	9.0	5.8	6.8	0.2	6
Red River Total	**9.0**	**3.6**	**3.5**	**1.4**	**132**

2.1.2.1.3. Riparian/channel processes. The MPI indicators for riparian and channel processes include riparian vegetation condition, streambank stability, floodplain connectivity, and physical barriers. For the Red River watershed, riparian vegetation condition, streambank stability, floodplain connectivity, and physical barriers were all rated as moderate in the South Fork Clearwater Subbasin BA (USDA Forest Service 1999c).

Streamside roads can artificially constrain stream channels and reduce floodplain connectivity by road encroachment in the riparian areas. In Red River, it is likely streamside roads have adversely affected riparian vegetation habitat condition in both the mainstem and many of the tributaries. Riparian vegetation condition has also been affected by grazing in many of these same areas. Streambank stability has been affected by domestic livestock grazing, with the most significant occurrences in the meadow reaches of Lower Red River on private land. Other affected areas include Main Red River above the confluence with South Fork Red River and along some of the larger tributaries. Physical barriers and impediments to upstream migration by fish and other aquatic organisms have been created by culverts and failed crossing structures at road/stream crossings. In Red River watershed, there are 132 known road/stream crossings (Table 9).

2.1.2.1.4. Water Temperature. State and Federal water quality criteria for temperature are commonly exceeded in main Red River and several of the tributaries. Natural climatic and

physical factors account for some of the standards being exceeded, but in a number of cases, temperatures have been influenced by shade removal and changes in channel morphology from human activities.

Little Moose, Siegel, Moose Butte, and Otterson Creeks, Red River, and the SFCR are listed for temperature in the Idaho Department of Environmental Quality (IDEQ) 2002/2003 draft 303(d)/305(b) integrated report of water quality limited streams. Total Maximum Daily Loads (TMDLs) were developed for the SFCR for water temperature and called for canopy density or shade targets on a stream reach basis throughout the subbasin, including Red River. Different analytical approaches were used for forested and non-forested reaches. Existing canopy density is considered not sufficient along many reaches in the Red River watershed.

Typical temperature patterns in Red River show a steady rise in late June and early July as the snowmelt runoff declines, with a peak in mid to late July, which coincides with maximum daily air temperatures, and then a decrease in late August as nights become longer and cooler. In most years, temperatures drop off significantly from October through December, and then remain relatively stable at 0 to 3°C until early thawing begins in March (USDA Forest Service 2003).

In July 2002, maximum daily temperatures in the main stem of Red River ranged from 22.8°C near the mouth of Ditch Creek, to 16°C at Red River just above the mouth of Shissler Creek, a distance of approximately 6 river miles (RM). The maximum daily temperature at the mouth of Red River reached approximately 25°C (USDA Forest Service 2003). During July 16 to July 22, 2003, the 7-day moving average of daily maximum temperature was 26°C for Red River at FSR 1800 Bridge, 24°C for Red River at the Ranger Station, 22°C for Red River upstream of Ditch Creek, and 20°C for Red River upstream of Otterson Creek.

Table 10. Summary of 2003 Water Temperature Data

Stream Name/Site	Number of Days > 20˚C	Maximum Instantaneous (˚C)
Red River above Otterson Creek	0	18.1˚C
Red River above Ditch Creek	28	22.9˚C
Red River at the Ranger Station	42	25.0˚C
Red River at FSR 1800 Bridge	71	26.6˚C

The number of days over 20˚C and the maximum instantaneous temperatures increase in downstream reaches (Table 10). The primary factors influencing this trend are increasing solar exposure, along with generally increasing air temperature as the stream drops in elevation. In 2003, the highest water temperatures were recorded on July 19.

2.1.2.1.5. Instream Habitat and Refugia. The number and quality of pools are an indication of habitat complexity and an important consideration when assessing the effects to habitat for stream-dwelling fishes. In Idaho batholith streams, number and size of fish is generally related to the number and quality of pools (Bjornn and Reiser 1991). The number of pools in a stream and the quality of those pools can be affected by: (1) Long-term increases in sediment yield,

which can result in pool-filling and eventual loss of pools; (2) increased bedload movement that also results in pool-filling; and (3) lack of LWD and other pool-forming structures. The number and quality of pools, therefore, is partly a function of channel morphology, sediment yield and deposition, and presence of pool-forming structures such as LWD, boulders, and stream meanders.

In the Red River watershed, number and quality of pools have probably been affected by reduced LWD recruitment, accelerated sediment yield, past increases in peak water yield, and in-channel mining that reduced channel meanders and simplified habitat. The environmental baseline of pool indicators was described in the South Fork Clearwater Subbasin BA (USDA Forest Service 1999c). Pool indicators included pool frequency and pool quality and were both rated low in 1999 at the Red River watershed scale. Analysis of data at a finer scale suggests pool frequency may meet objective criteria for some stream reaches, but that excess sediment deposition may have reduced pool volume (USDA Forest Service 2003).

The LWD in Red River is an important habitat attribute and contributes directly to pool formation, habitat complexity, and overall productivity of streams. Given the predominance of low and moderate gradient reaches throughout the watershed, Red River and its tributaries retain recruited debris at a high rate (USDA Forest Service 2003). The LWD in many reaches has been reduced directly by in-channel placer mining and indirectly by timber harvest and road construction in riparian areas. However, the recent widespread mortality of lodgepole pine in riparian areas may have resulted in substantial local increases in LWD, an observation made by the NPNF for some subwatersheds.

2.1.2.1.6. Others. In the MPI, the NPNF did not rate the chemical contamination/nutrients indicator due to lack of data. However, it is certainly possible there are effects associated with abandoned mine sites, the sewage treatment plant at the old ranger station, and activities on private lands within the watershed.

Of the take indicators, harassment and juvenile harvest were rated moderate and redd disturbance was rated low. Streamside campgrounds, both developed and dispersed, exist throughout the watershed, and use of these campgrounds may occur when steelhead are spawning and/or redds are present. Red River is managed under IDFG general fishing regulations, with no gear restrictions, and anglers may harvest up to six trout per day, with no size limit. Therefore, harvest of juvenile steelhead can occur legally under existing regulations.

Pool quantity and quality, LWD, sediment deposition, fish passage, stream shading and water temperature are problematic in the Red River watershed. The NPNF is attempting to improve these parameters with their restoration package. Direct habitat improvements may be the best way to improve existing conditions in the action area since rearing habitat is limiting.

2.1.2.2. South Fork Clearwater River

Red River and American River join together approximately 5 miles west of Elk City, Idaho, to form the SFCR. From there, the SFCR flows northwesterly for approximately 60 miles until joining the Middle Fork Clearwater River at the town of Kooskia to form the mainstem Clearwater River. The SFCR subbasin encompasses an area of approximately 752,000 acres with 14 major watersheds and numerous face drainages that flow into it.

From the confluence of American and Red River to about Tenmile Creek, the mainstem SFCR is a relatively low gradient riffle/pool stream dominated by gravel and cobble substrate and is typically a C-channel type. It has been highly altered by dredge mining and Idaho State Highway 14. From Tenmile Creek to Mill Creek, the mainstem SFCR is a steeper, more confined stream dominated by boulders and cobble substrate and is typically an A or B-channel type. As such, it is a high energy reach that can transport sediment downstream. From above Threemile Creek to its confluence with the Middle Fork Clearwater River at Kooskia, the mainstem is much flatter with gravel and cobble substrate and is predominately a C-channel type where fine sediments can deposit.

The SFCR has had many of the same activities within it that the Red River watershed has incurred, such as timber harvest, road building, grazing, mining, and recreation. Therefore, many of the same problems that affect the Red River watershed are also common in the SFCR watershed. These include pool quantity and quality, LWD, cobble embeddedness, fish passage, stream shading, and water temperature.

2.1.2.2.1 Sediment. The IDEQ contracted the collection of cobble embeddedness and percent surface fines (via pebble counts) in several areas in the mainstem SFCR. These data are summarized in Table 11. The relatively low estimates of percent surface fines are not entirely consistent with the higher values shown for the cobble embeddedness data. In addition to the table information, the BA stated that the Bureau of Land Management collected data on pebble counts, percent surface fines by depth, and cobble embeddedness in 2000 from a site located at river mile (RM) 58.6, which is above the mouth of Crooked River. These data indicated percent fines <6 mm was 5.3, percent depth fines was 39.5, and cobble embeddedness was 29.6%.

Table 11. 2002 BLM Substrate Data, South Fork Clearwater River.

General Reach Location	% Surface Fines < 2 mm	% Surface Fines < 6 mm	Cobble Embeddedness
Downstream of Three Mile Creek 2 miles	3.7	3.7	48.2%
Upstream McAllister Campground 2 miles	3.3	3.4	46.9%
Upstream of Tenmile Creek 2 miles	2.2	2.2	47.3%
Upstream of Crooked River 2 miles	6.0	6.0	46.6%

2.1.2.2.2. Water Temperature. Water temperature in the mainstem SFCR commonly exceeds Idaho State Water Quality Standards during the summer months. Daytime summer water temperatures are warmest in the lower reaches (RM 0 to 20) below the NPNF boundary, mainly because the river is wider, shallower and more exposed to solar radiation in the lower reaches. The river is coolest where it runs east to west in a narrow, confined canyon (RM 35 to 50). It is somewhat warmer in its upper reaches where it is once again wider and shallower, with less effective topographic shading (RM 50 to 65). Night time water temperatures follow a somewhat different profile, generally increasing downstream, but with little change below RM 25. Table 12 displays data since 1993 for three sites on the SFCR. It is notable that, with the exception of 1994, the years since 1998 have shown longer durations of warmer temperatures.

Table 12. Summary of Water Temperature Data for South Fork Clearwater River

	Number of Days >20 ˚C			Max Instantaneous Temp ˚C		
Year*	Upper	Mt. Idaho	Stites	Upper	Mt. Idaho	Stites
1993	2	0	32	25.0	19.0	22.7
1994	34	24	50	24.5	23.3	28.4
1995	0	2	37	16.5	20.7	24.9
1996	2	7	52	20.0	21.6	26.2
1997	1	3	48	20.5	21.0	24.7
1998	24	14	31	22.2	21.6	22.0
1999	26	10	47	22.5	21.2	25.6
2000	35	26	61	24.7	22.9	27.9
2001	25	16	57	24.2	21.7	26.7
2002	31	16	52	25.1	22.5	26.7
2003	39	33	56	24.7	26.0	27.5
2004	NA	28	43	NA	23.2	27.5

* (Data starts on August 1 of each year)

2.1.3. Effects of the Action

'Effects of the action' means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). If the proposed action includes offsite measures to reduce net adverse impacts by improving habitat conditions and survival, NMFS will evaluate the net combined effects of the proposed action and the offsite measures as interrelated actions.

'Interrelated actions' are those that are part of a larger action and depend on the larger action for their justification; 'interdependent actions' are those that have no independent utility apart from the action under consideration (50 CFR 402.02). Future Federal actions that are not a direct effect of the action under consideration, and not included in the environmental baseline or treated as indirect effects, are not considered in this Opinion.

'Indirect effects' are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02). Indirect effects may occur outside the area directly affected by the action, and may include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration.

There are no interrelated or interdependent actions associated with this project. The effects evaluated in this Opinion are the direct effects that are expected to result from the Red Pines Project actions, and the indirect effects of them utilizing some of the temporary roads constructed by the implementation of the project, which is discussed in the section of effects on road and trail activities. Road maintenance, road prism brushing, clearing, and roadside hazard reduction activities will continue within the action area, but are covered under the NPNF road management programmatic BA (USDA Forest Service 1999b). Timber harvest, fuel treatments, road activities, instream construction, soil restoration activities, and mine reclamation activities may potentially adversely affect salmonid species and their habitat.

2.1.3.1. Effects on Listed Species and Their Habitat in Red River

2.1.3.1.1. Effects of Proposed Timber Harvest. The NPNF proposes to use combinations of clearcutting, shelterwood harvest, and precommercial thinning on 3,455 acres in the Red River watershed to accomplish their vegetative and economic objectives. Timber harvest removes vegetative cover and can expose bare areas of soil, which increases the risk of erosion. Sediment could also reach the streams through landslides resulting from harvest on landslide-prone terrain. If sediment reaches the river channels, it can be stored for years and become a repository (Bilby *et al.* 1989). This is a concern, since the IDEQ and U.S. Environmental Protection Agency have identified the SFCR subbasin (including Red River) as a priority water quality limited water body under the Clean Water Act (CWA). The SFCR subbasin is a CWA 303(d) listed watershed for sediment. However, Belt *et al.* (1992) showed sediment could be effectively controlled by buffer zones 300-feet wide. To meet PACFISH RMOs, the NPNF established project MDCs pertaining to timber harvest and fuels treatment to reduce erosion, soil compaction, and excessive disturbances. For the project, the NPNF will maintain PACFISH buffer strips by not removing timber in streamside or wetland RHCAs, except for minimal amounts necessary at temporary road crossings or to facilitate anchoring of cable yarding systems, and as long as doing so does not retard the attainment of RMOs. Also, the NPNF will not harvest any timber from areas with a high landslide prone risk. To further protect slope stability, the NPNF will modify as needed any timber harvest in areas with moderate landslide risk. NMFS feels that these MDC measures will limit the harmful effects to the aquatic system that could be caused by timber harvest. The effects of sediment production will be further discussed in the roads section (section 2.1.3.1.3).

The primary effect of proposed timber harvest is increased water yield, which is roughly indicated by ECA. Removal of vegetation has the potential to increase streamflow in the short-term (up to 10 years) due to changes in evaporation, precipitation, wind patterns, and soil infiltration and percolation (Fowler *et al.* 1987, Dunne and Leopold 1978). The NPNF expects ECA to increase in 16 of the 18 subwatersheds, with the largest increases in Schooner Creek and Blanco Creek (+7% each). Schooner Creek is listed in the BA as suspected of not having

steelhead present, while Blanco Creek is suspected of having steelhead present, but mainly near the stream mouth. The Red River watershed as a whole will increase from 9% to 12% ECA (Table 13). The NPNF deemphasized the water yield analysis since sediment yield modeling is a more limiting constraint in nearly all cases, except where ECA exceeds 25% to 30% (Gerhardt *et al.* 1991). NMFS uses 15% ECA as a threshold of concern regarding effects on stream hydrology, particularly peak flow, and thus on fish habitat conditions (NMFS 1995). Since much of the material to be removed by this project is primarily dead lodgepole pine, water yield effects are less than if live trees were being harvested. NMFS feels the overall increase in ECA will have some detrimental effects to fish, but project MDCs and restoration activities such as road decommissioning and soil restoration will improve water infiltration and reduce surface runoff, which will buffer most of the detrimental effects due to increases in ECA. Road crossing improvements proposed by the NPNF will also assist with more effectively passing water during higher flow events.

Table 13. Changes to Equivalent Clearcut Area by Subwatershed.

Subwatershed	Existing ECA (%)	Predicted ECA (%)	Subwatershed	Existing ECA (%)	Predicted ECA (%)
Dawson Creek	24	24	Lower SF Red R.	8	11
Lower Red River	8	12	Upper SF Red R.	8	9
Siegel Creek	8	11	Little Moose Creek	15	16
Ditch Creek	13	14	Blanco Creek	18	25
Trail Creek	4	4	Deadwood Creek	16	17
Soda Creek	12	14	Red Horse Creek	6	7
Main Red River	5	11	French Gulch	13	16
Schooner Creek	11	18	Campbell Creek	13	14
Trapper Creek	8	11	Lowest Red River	9	12
Red R. Watershed	**9**	**12**			

The SFCR subbasin is also listed for water temperature under the CWA 303(d). The TMDL water temperature process developed for the SFCR called for canopy density or shade targets on a stream reach basis throughout the subbasin, including Red River. Existing canopy density is considered not sufficient along many stream reaches in the watershed. However, the NPNF will not harvest along streamside areas, but instead will maintain PACFISH buffers along all harvest units to maintain shade conditions. In the long-term, the NPNF will improve existing streamside conditions through their riparian improvement projects and some of the road decommissioning projects.

2.1.3.1.2. Effects of Proposed Prescribed Fire and Slash Treatments. The NPNF proposes to use underburning, broadcast burning, and pile burning following timber harvest to achieve their fuel treatment objectives. The NPNF expects these fires to burn at low to moderate intensities and have little effect on forest canopy or slope stability. Escaped fires, nutrients, and erosion are potential problems associated with these fuel treatments. The NPNF believes the proposed fuel treatment activities to be beneficial because they may reduce the severity and extent of future

fires in the action area, possibly preventing uncontrollable, stand-replacing fires. However, Bisson *et al.* (2003) state that "to protect aquatic ecosystems we argue that it will be important to accommodate fire-related and other ecological processes that maintain aquatic habitats and biodiversity, and not simply control fires or fuels." They go on to say that stand-replacing fires are part of the natural disturbance regime, and that many stream systems are rejuvenated by pulses of sediment and wood following fires. The action area is largely lodgepole pine that naturally experiences stand-replacing fires at intervals as short as 50 years. The proposed action disrupts a natural disturbance process and replaces it with chronic small-scale disturbances that are likely to maintain current conditions, while a stand-replacing fire is more likely to cause dramatic changes in the system that may lead to higher pool frequency and higher habitat diversity.

Risks from prescribed fire and burning slash include the potential of escaped fire situations. The use of fire retardants, foams and wetting agents are not identified in the BA as chemicals proposed for use in the Red River Project; however, these chemicals are sometimes used with prescribed burns, and particularly with escaped fires. Laboratory studies by Buhl and Hamilton (2000) concluded that if some types of fire-control chemicals were accidentally introduced to water, they would require substantial dilutions (100 to 1,750 fold) to reach concentrations non-lethal to rainbow trout. Rainwater runoff from watersheds treated with recommended mixed retardant concentrations may pose environmental hazard for weeks after application (Little and Calfee 2002). However, under the ignition conditions proposed by the NPNF, there is a low likelihood of escaped fire, and thus, a low likelihood for the need for retardants. If fire-control chemicals are used, as in the case of an escaped fire, their use is subject to the conditions outlined in the NPNF fire management programmatic BA (USDA Forest Service 1999d).

Slash burning near RHCAs could lead to increases in phosphorous and nitrogen entering the stream (Belt *et al.* 1992). However, plants in the RHCAs and within the streamside PACFISH buffers are expected to absorb many of the nutrients released during burning, keeping the nutrients on land. Skille (1990) also reports that increases in nitrogen and phosphorous as a result of burning slash in the fall cannot be detected the following spring. Generally, nutrient loading to streams in Idaho is not of concern (Skille 1990), and may actually increase productivity and macroinvertebrate biomass.

Controlled burns conducted on the NPNF in the past decade have been monitored to determine post-burn effects on both terrestrial and aquatic resources. The NPNF is experienced at treating fuels and has been very successful at controlling these prescribed fires. Their monitoring results suggest that burn plan objectives were met, and either no burning occurred in RHCAs, or where it did occur, no overstory mortality occurred (USDA Forest Service 2002a). Erosion plots established on the Camp Creek prescribed burn in the South Fork Salmon River exhibited no soil movement on steep slopes over an 8-year period (USDA Forest Service 2002a).

Machine piling activities may temporarily increase the amount of sediment moving from upland areas into the RHCAs. The NPNF used NEZSED (NPNF sediment model) to model the sediment influx by activity for the overall project. The amount of sediment production for fire activities was estimated to have only small increases in sediment delivery to streams. The NPNF will not intentionally burn in streamside RHCAs. Considering the low levels of ground

disturbance and low intensity of burn treatments associated with the action as proposed, combined with the application of PACFISH buffer strips of 300 feet, sediment production is expected to be negligible (Snyder *et al.* 1975; Belt *et al.* 1992).

2.1.3.1.3. Effects of Proposed Road and Trail Activities. The Red River Project includes 17.68 miles of temporary road construction, 77.05 miles road reconstruction, and 103.73 miles of mandatory road decommissioning. When the Red Pines project is completed, the watershed road density will decrease from 3.6 to 3.0 mi/mi^2 and the streamside road density will decrease from 4.2 to 3.5 mi/mi^2 (Table 14).

Table 14. Changes to Road Densities by Subwatershed for the Red Pines Project.

Subwatershed	Existing Road Density (mi/mi^2)	Post-Project Road Density (mi/mi^2)	Existing Streamside Road Density (mi/mi^2)	Post-project Streamside Road Density (mi/mi^2)
Dawson Creek	5.7	3.3	5.4	2.9
Lower Red River	4.9	3.5	4.4	3.8
Siegel Creek	3.2	3.2	2.7	2.7
Ditch Creek	4.2	3.0	3.9	2.3
Trail Creek	2.2	1.8	2.3	2.1
Soda Creek	3.5	2.6	3.0	2.2
Main Red River	3.0	2.1	3.2	2.6
Schooner Creek	3.9	3.4	2.6	2.3
Trapper Creek	2.6	2.4	1.9	1.8
Lower SF Red River	4.2	3.7	6.2	6.2
Upper SF Red River	3.3	2.6	3.2	3.0
Little Moose Creek	5.1	3.0	5.5	2.8
Blanco Creek	5.3	3.6	3.1	1.7
Deadwood Creek	6.6	5.2	5.4	4.4
Red Horse Creek	2.1	2.1	2.1	2.1
French Gulch	2.8	2.8	2.1	2.1
Campbell Creek	3.7	3.1	2.9	1.9
Lowest Red River	5.8	4.8	7.1	6.6
Red River Watershed	**3.6**	**3.0**	**4.2**	**3.5**

Road construction, reconstruction, and decommissioning can affect fish habitat through changes in erosion and sediment delivery rates due to ground disturbance, and when roads are located in RHCAs, through disturbance of riparian vegetation and stream channels. Also, increased road traffic from hauling logs and transporting machinery will increase the amount of road dust produced by the Red Pines Project, but the use of dust abatement will alleviate this problem and is covered under the programmatic BA for road maintenance (USDA Forest Service 1999b). The primary sources of chronic and excessive sediment in these watersheds are believed to be the road system and legacy mining effects. The Idaho Water Quality Bureau (1988) found that streamside roads are the most important factor contributing to water quality degradation. Existing levels of instream sediment throughout the action area are not properly functioning for salmonids, as indicated by cobble embeddedness and percent surface fines. The primary sediment-producing activities modeled include road decommissioning, temporary road

construction, road reconstruction/reconditioning, prescribed fire, and vegetative treatments. Silvicultural treatments (clearcut, shelterwood, and irregular shelterwood) and harvest systems (skyline/cable and tractor) were incorporated into the model. Effects were modeled for a 10-year period, starting in 2003 and ending in 2012, with the assumption that activities would be implemented in 2005. (The time frame for the Red Pines Project, however, has been delayed so that the beginning of the project will occur in 2006.) Activities occurring throughout the lifetime of the project are modeled as occurring all within one year (2005) to determine compliance with Forest Plan sediment yield guidelines and adherence to FISHSED (Model relating fish potential with sediment) assumptions.

For this analysis, NEZSED was used to model the total sediment yield for timber harvest, prescribed fire, temporary road construction, road reconstruction of existing roads and road decommissioning (Table 15). Activities not modeled include soil restoration activities, trail construction or maintenance, and stream channel restoration activities. The model is limited in that it does not consider the effects of activities on mass erosion greater than 10 cubic yards, the effects of grazing on streambank erosion, and most mining effects. Though the model shows annual variations in response to land use, it does not attempt to estimate annual variation due to climate or weather events. Sediment yield is commonly expressed as tons/year or percent over baseline. Appendix A of the Nez Perce National Forest Plan stipulates guidelines for sediment yield and entry frequency on a subwatershed basis (USDA Forest Service 1987).

The peak sediment yield is predicted to increase in 11 of the subwatersheds. In all streams, these peaks are below their Forest Plan sediment yield guideline, except for Lower Red River and Moose Butte Creek, whose situations are unique because the existing sediment yield already exceeds their Forest Plan guideline. Sediment yield increases are predicted in year 2005, but the yield declines every year thereafter in most streams such that by year 2010, baseline yields are less than current yields. This reduction occurs as a result of road decommissioning and certain road improvements, which reduce the level of chronic sediment entering the watershed. The overall watershed and streamside road densities will decline as well.

The NPNF used the NEZSED model to estimate sediment delivery to first-order stream channels in the action area. Sediment yield is expressed as the percentage of sediment delivery over the "natural" baseline. Road and watershed improvements, fuel treatments, and timber harvest will increase sediment yield significantly in the year the activity takes place, but the project is designed to create an upward trend in water quality approximately 10 years after the Red Pines Project is completed. The NEZSED model does not model sediment generated during instream construction and culvert replacements; therefore, the sediment generated by instream activities will be addressed in section 2.1.3.1.4 on the effects of instream construction.

The NPNF uses the FISHSED model which uses the predicted peak sediment yields from NEZSED to calculate potential changes in cobble embeddedness, embryo survival, summer rearing capacity, and winter rearing capacity (Stowell *et al*. 1983). The specific fish response curves have drawn heavily upon the work of Bjornn (1969), Klamt (1976), McCuddin (1977), and Bjornn *et al.* (1977). These studies were conducted primarily in the laboratory and may constitute only a partial simulation of natural conditions. The model calculates short-term

changes only and does not have the capability to provide estimates in substrate response to long-term declines in sediment yield. Table 16 displays the existing condition of the Red Pines area streams and changes predicted by FISHSED.

Table 15. NEZSED Modeling Results for Red Pines Project (% Over Base)

Subwatershed	Forest Plan Guide	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Dawson Creek	60	39	39	38	33	30	30	30	30	30	30
Lower Red River	20	22	22	27	21	19	19	19	19	19	19
Siegel Creek	35	23	23	26	24	23	23	23	23	23	23
Ditch Creek	30	26	26	30	19	15	15	15	15	15	15
Trail Creek	30	14	14	14	12	12	12	12	12	12	12
Soda Creek	30	22	22	25	18	16	16	16	16	16	16
Bridge Creek	30	13	13	13	13	13	13	13	13	13	13
Upper Main Red R.	30	25	25	25	25	25	25	25	25	25	25
Baston Creek	30	8	8	8	8	8	8	8	8	8	8
Otterson Creek	30	0	0	0	0	0	0	0	0	0	0
Main Red River	25	20	20	24	19	18	18	17	17	17	17
Schooner Creek	35	22	22	29	22	20	19	19	19	19	19
Middle Fork Red R.	35	10	10	10	10	10	10	10	10	10	10
West Fork Red R.	30	6	6	6	6	6	6	6	6	6	6
Trapper Creek	30	11	11	11	10	9	9	9	9	9	9
Pat Brennan Creek	60	13	13	13	11	9	9	9	9	9	9
Lower SF Red R.	30	15	15	17	14	13	13	13	13	13	13
Upper SF Red R.	35	10	10	10	9	9	9	9	9	9	9
Little Moose Creek	45*	39	39	40	28	23	23	23	23	23	23
Moose Butte Creek	30	37	37	37	37	37	37	37	37	37	37
Blanco Creek	60	37	37	39	24	19	19	19	19	18	18
Deadwood Creek	45*	34	34	34	30	27	27	27	27	27	27
Red Horse Creek	30	13	13	14	14	13	13	13	13	13	13
French Gulch	60	17	17	17	17	17	17	17	17	17	17
Campbell Creek	60	26	26	30	23	22	21	20	20	20	20
Lowest Red River	30*	23	23	27	21	20	20	19	19	19	19

* NPNF Forest Plan Guideline As Amended

The NPNF BA states that FISHSED is most appropriately used to assess the effects of "substantial" changes in habitat quality greater than 10% and to document the differences among alternatives (Stowell *et al*. 1983). Of the above results, only the predicted changes in cobble embeddedness in Lower Red River and Campbell Creek exceed this 10% threshold; for all the others, predicted changes in cobble embeddedness are less than 10%. Predicted changes in winter rearing capacity equal or exceed 10% in Lower Red River, Ditch Creek, Campbell Creek, and Schooner Creek. Percent change in cobble embeddedness, summer rearing capacity, and winter rearing capacity are presented in Table 17.

Therefore, for Lower Red River, Ditch Creek, Campbell Creek, and Schooner Creek, the short-term increase in sediment yield may be of a magnitude where changes in cobble embeddedness result in measurable decreases in winter rearing capacity. For all other streams, modeled peak sediment yields are not at a level where measurable changes in habitat would

occur. The peak sediment yields modeled by FISHSED include sediment yields from both existing (legacy) sources and sources from the proposed action. In all cases, sediment from legacy sources comprises the majority of the peak, and contributions from the proposed action alone would probably not significantly affect the above streams.

Table 16. FISHSED Results for the Red Pines Project for those Subwatersheds Where Sediment Yield Is Predicted to Increase

Subwatershed	Existing CE (%)	Predicted CE (%)	Existing Summer Rearing (%)	Predicted Summer Rearing (%)	Existing Winter Rearing (%)	Predicted Winter Rearing (%)
Lower Red River	31	35	94	92	45	40
Siegel Creek	55	59	80	77	24	22
Ditch Creek	62	67	74	74	20	18
Soda Creek	50	54	83	80	27	25
Main Red River	45	49	87	84	31	28
Schooner Creek	50	55	83	80	27	24
Lower SF Red River	66	68	71	69	18	17
Little Moose Creek	55	59	80	77	24	22
Blanco Creek	50	54	83	80	27	25
Red Horse Creek	52	54	82	80	26	25
Campbell Creek	43	48	88	85	33	29
Lowest Red River	45	49	87	84	31	28

Table 17. Percent Change in Cobble Embeddedness, Summer Rearing Capacity, and Winter Rearing Capacity, Based on FISHSED Results

Subwatershed	Percent Change Cobble Embeddedness	Percent Change Summer Rearing Capacity	Percent Change Winter Rearing Capacity
Lower Red River	11.4	2.13	11.1
Siegel Creek	6.78	3.75	8.33
Ditch Creek	7.46	5.41	10.0
Soda Creek	7.41	3.61	7.41
Main Red River	8.16	3.45	9.68
Schooner Creek	9.09	3.61	11.1
Lower SF Red River	2.94	2.82	5.56
Little Moose Creek	6.78	3.75	8.33
Blanco Creek	7.41	3.61	7.41
Red Horse Creek	3.70	2.44	3.85
Campbell Creek	10.4	3.41	12.1
Lowest Red River	8.16	3.45	9.68

Cobble embeddedness currently ranges from 31% to 66% in the Red River watershed (Table 16). As a result, the summer rearing capacity of Red River subwatersheds ranges from 70% to 94% of natural capacity. Winter rearing capacity is much lower in the watershed, ranging from 18% to 45% of natural capacity. When the project is complete, cobble embeddedness is expected to increase in all tributaries, ranging from 35% to 68%, an increase of approximately 2.9% to 11.4%. The NPNF therefore expects to reduce summer rearing capacities by 2.1% to 5.4% and winter rearing capacities by 3.8% to 12.1%. However, in the long-term, the project should reduce chronic sediment inputs and reduce the likelihood of mass failures due to the numerous improvements in stream crossings. Along with the instream habitat improvements proposed by the NPNF, the project should eventually lead to improved habitat and rearing conditions. Cobble embeddedness is only one of the parameters affecting rearing capacity; other parameters will be addressed in section 2.1.3.1.4 on the effects of instream construction.

Riverine ecosystems are well adapted to pulses of sediment, but are adversely affected by chronic sediment (Waters 1995), which rarely occurs naturally (Yount and Niemi 1990; Reeves *et al.*1995; Benda *et al.*1998). Several studies (Lisle 1982; Platts *et al.* 1989; Madej and Ozaki 1996) indicate that the recovery time for channel features altered by sediment deposition, such as channel geometry, fine sediments in spawning gravels, and pool depth, varies from a few years to a few decades. In the South Fork Salmon River, monitoring by the Payette National Forest indicates that pool depths have not completely recovered from large influxes of sediment from road failures nearly 40 years ago (Platts *et al.* 1989), in spite of a moratorium on timber harvest, road building, substantial reductions in road density, and other sediment-reducing actions. Pool depth in the action area continues to be lacking due to sediment inputs from mining over half a century ago. Since the South Fork Salmon River has a higher sediment transport capacity than the Red River watershed, it may take years to decades for the watersheds in the action area to recover.

Lower gradient reaches are particularly susceptible to sediment deposition and relatively long-term storage. With regard to sediment deposition and transport, one classification system suggests that channels with less than three percent gradient can be considered response reaches and channels with greater than three percent gradient can be considered either transport or source reaches (Montgomery and Buffington 1993). The mainstem of Red River is a response reach with a gradient generally less than two percent. Tributaries to Red River often have gradients of two to four percent, with their headwater areas often above four percent. Sediment transport and storage could be a concern since the main Red River channel contains response reaches and are typically used as overwintering habitat. The effects to the SFCR may be less since it has a higher transport capacity than Red River. However, the SFCR is already sediment impaired and additional sediment input would be detrimental to the survival of listed species.

The project includes MDC measures to limit potential adverse effects of sediment from road-related activities. To reduce erosion from road activities, the NPNF will adhere to measures consulted on under the trail maintenance programmatic BA (USDA Forest Service 1999a). Sediment from temporary roads could become chronic and persistent if the roads were to remain drivable by off-road vehicles. Project criteria for temporary roads require less than 3 years of use, live water avoidance as much as possible, road obliteration, no public travel use, and slash and debris placement to deter traffic.

NMFS expects the temporary road construction, road decommissioning, road reconstruction, and road improvements to have some negative impacts that will be most noticeable the first few years after construction. Take of listed steelhead could occur from increased sediment loading. Eventually, however, the road improvements and decommissioning should reduce chronic sediment inputs and return sediment yields to present levels, and at some point in time, the sediment yield is expected to be less than it is presently. As sediment yield decreases, summer and winter rearing habitat will gradually improve and increase the salmonid carrying capacity of the Red River watershed.

Although the project might eventually lead to less sediment yield, and therefore, an upward trend in habitat quality over the next few decades, providing there are sufficient flows to move the sediment out, it is also possible that sediment created by this project will remain in the channel for decades until a large flow event occurs. However, even though sediment levels are high, they may not be the limiting factor for fish populations within the Red River watershed. Dredge mining and other legacy impacts virtually eliminated pools, riparian plant communities, the floodplain, and other essential habitat features. This project increases sediment for a while, but the benefits of increased habitat diversity from the instream restoration projects and the stream crossing improvements are likely to more than offset the adverse effects of sediment.

Effects from sediment produced during implementation of most of the proposed actions are expected to be fairly localized (restricted to project site areas) and of a fairly short duration (project implementation time). For broader scale actions, NEZSED modeling projects elevated sediment levels over a longer period of time but the NPNF has incorporated habitat improvement actions which should alleviate a significant portion of the long-term effects. Some increase in cobble-embeddedness, which negatively influences summer and winter-rearing habitat, is expected but the habitat improvement projects will also serve to provide additional summer and winter-rearing habitat. Additionally, the replacement of culverts, which have prevented fish passage into upper reaches of some streams, will likely make more rearing habitat available.

2.1.3.1.4. Effects of Proposed Instream Construction. As part of their effort to fulfill their commitment to their Forest Plan upward trend policy, the NPNF will improve 42 stream crossings, modify 8 miles of instream structures, improve 2 miles of instream habitat, place 38 miles of LWD, improve 21.08 miles or riparian area, and remove 9 acres of improper functioning sediment traps. The discretionary activities include an additional 18 stream crossings, 1 mile of LWD placement, 10 miles of riparian improvement, and 1 acre of sediment trap removal. The stream crossing improvements include upgrading or improving existing bridges and culverts to increase fish and streamflow passage. Instream habitat improvements require planning, design work, and permitting, which has not yet occurred. The NPNF plans to improve the riparian and instream habitat through a variety of activities, including riparian plantings, floodplain reconnection, instream structure construction, repair and redesign of existing structures, meander and sinuosity repairs, LWD placement, and sediment trap repair or removal.

Direct mortality through crushing of juvenile fish could result when placing boulders and LWD into streams and from instream operation of heavy machinery. NMFS believes the mainstem rivers are large enough to allow escapement of fish from heavy equipment; however, in the smaller tributary streams, the NPNF will chase fish from the area to avoid injuring or killing fish. If that is ineffective and mortality is likely to occur if the fish remain in the area, fish biologists can remove fish from the area by electrofishing, following the guidelines established by NMFS. Electrofishing occasionally causes mortality and sub-lethal effects to fish, and in some cases, less harm may occur by scaring the fish from the instream construction site than by electrofishing and removing the fish. Before electrofishing is conducted, the onsite fish biologist must decide which option will have the least harmful effect to listed fish.

The NPNF will give preference to open bottom arches, bridges, and oversized culverts on temporary and permanent roads. Such replacements will require instream work using temporary water diversions, removing existing culverts, installing new crossings, possibly adding instream structures above and below the site, and finally, removing the temporary diversions. Activities associated with instream construction will likely increase stream turbidity, and to some degree, rearrange substrate materials. The NPNF expects culvert replacements to produce 1.5 to 2 tons of sediment per culvert (USDA Forest Service 2002b) or 63 to 84 tons for the required stream crossings, or 90 to 120 tons for the entire project. Nearly all of this sediment will likely get deposited within 300 feet downstream of the culverts. To reduce adverse effects of sediment delivery, instream activities would occur during low flow periods from July 1 to August 15. During construction activities, sediment and erosion control measures will be used to protect fish habitat and water quality. Despite the mitigation measures, turbidity levels could temporarily diminish feeding and affect other behavioral characteristics; however, the duration and extent of turbid flows are likely to be short lived and localized. The lethal concentration for 50% of Chinook salmon (LC50) in confined laboratory settings is 488 mg/L for 96 hours (Stober *et al.* 1981; Newcombe and MacDonald 1991; Waters 1995). Generally, construction will only occur for 2 to 4 hours at each site, and during this time, the NPNF will monitor project activities to keep turbidity levels below lethal limits. Immediate and long-term benefits of culvert replacements are improved or restored fish passage, increased sediment and debris transport, and reduced risk of road fill failures.

Toxic chemicals could be introduced to the stream during all phases of instream construction as well as during other project activities, including when hauling logs and transporting machinery. The NPNF and its contractors use fuels, hydraulic fluids, and various petroleum-based lubricants, which are toxic to aquatic species if they leak or spill. To keep toxic materials from live water, the proposed action includes mitigation measures to reduce impacts from fuel storage, refueling, and fuel leaks. The NPNF also established mitigation measures requiring operators to follow the Idaho Forest Practices Act (IFPA) and prepare a Spill Plan prior to project implementation.

The 2 miles of required instream improvements, 8 miles of structure maintenance, and 38 miles of LWD placement should improve both summer and winter rearing habitat and increase the survival of juvenile anadromous fish in Red River, as was the case with similar restoration work in the Crooked River system (Kiefer and Lockhart 1995; Kiefer and Lockhart 1999). The NPNF will create pools by placing boulders and LWD in the river. The LWD will scour more pools

and provide a source for coarse particulate organic matter for macroinvertebrates. As a project MDC measure, the NPNF will use wood from outside RHCAs for LWD to preserve stream shading. Kiefer and Lockhart (1999) showed that salmon and steelhead in Crooked River used the habitat structures for spawning because the gravel was well sorted and free of sediment.

Kiefer and Lockhart (1999) analyzed steelhead trout densities following instream improvements in Crooked River, where pools were artificially created in 1984. They concluded that, "complex habitat enhancement structures apparently can increase the carrying capacity for age-1+ steelhead trout in streams with low habitat complexity." These structures more than doubled the carrying capacity in the improved stretches of Crooked River. Although population increases of this magnitude may not occur in Red River, NMFS expects the improvements to result in an increase in habitat carrying capacity. The primary limiting factor of Red River is impaired rearing habitat, and the pools and complexity created by this project should provide immediate increases in the quality and quantity of rearing habitat.

The NPNF will be removing eight sediment trap sites, two each from four different streams. Although the NPNF has incorporated MDC measures for the sediment trap removals that will reduce most project impacts, they have not indicated how they will deal with the excess sediment stored within the sediment traps. If all of the sediment at a site were to be released at one time, it is possible that there could be some immediate detrimental effects to steelhead and designated critical habitat.

2.1.3.1.5. Effects of Proposed Soil Restoration Activities. The NPNF plans to improve 170.2 acres of compacted soil in the Red River watershed, plus the acreage associated with the road decommissioning. The NPNF plans to till the soil in compacted areas, such as old log landings, skid trails, fire lines, temporary roads, and decommissioned roads, which may cause a short-term increase in sediment yield. Vegetation is expected to reestablish quickly in the restored areas due to project MDC measures and increased soil aeration. Since most of the soil restoration will occur in upland locations away from live water, along with the presence of PACFISH buffer strips of 300 feet, the sediment production from soil restoration activities is expected to be localized, short-term, and negligible.

2.1.3.1.6. Effects of Proposed Mine Reclamation Activities. The NPNF plans to reclaim 26.1 acres damaged by historic mining. The Red River watershed is in degraded condition, partly because of legacy mining effects which are a primary contributor of chronic sediment in the system, even after 50 years of natural recovery since the last mining operations. In areas where the NPNF plans to stabilize and restore mine sites, the reclamation is expected to contribute approximately 1 to 2 tons of sediment to the system. After the site has been stabilized and restored, there will be long-term benefits as a result of eliminating chronic sediment inputs at these sites.

The NPNF plans to test the mine sites for heavy metals. When the mines were active, gold was extracted using chemicals toxic to listed fish. Since the NPNF has yet to test these areas, NMFS

is uncertain of the types of chemicals or the concentrations that may be found. Mine site reclamation will not only reduce chronic sediment, but perhaps reduce toxic impacts should any heavy metals be found through testing adits.

2.1.3.1.7. Effects on Listed Species. Lethal and sub-lethal take of listed species will occur during projects permitted in this consultation from fish salvage or relocation operations (those actions necessary to remove fish from project areas). This take may be in the form of fish killed during relocation actions or, more often, fish that are handled during the operations. It is uncertain how many actions which require fish salvage or relocation will be conducted during any given year. It is anticipated that in a large number of actions, the NPNF will be able to chase fish out of the project area without having to use electrofishing.

Lethal take from electrofishing operations for Snake River steelhead was estimated using fish densities described in the Idaho Habitat/Natural Production Monitoring Report (Hall-Griswold and Petrosky 1995). Lethal take was estimated by using the smolt density to parr carrying capacity numbers for steelhead and a generalized habitat rating. Hall-Grisswold and Petrosky (1995) rated habitats as poor, fair, good, and excellent for steelhead, with each habitat rating assigned a smolt density to parr carrying capacity number for Idaho streams. NMFS chose a good habitat rating for steelhead and estimated that salvage operations, on average, should not exceed 450 square feet (15 feet wide by 30 feet long) for tributary sites. Fish densities relating to the good rating for habitat were chosen for the Clearwater and Salmon River Basins in this analysis. This rating was used for several reasons. First, baseline descriptions described in the BA include a wide range of habitat conditions for the action area. Also, when assessing potential for take, NMFS often uses a worst case scenario analysis (e.g. the highest densities likely to be encountered) so as to ensure that potential take is not underrepresented in the jeopardy analysis. Since few Idaho streams are currently considered to be at full carrying capacity (or excellent habitat condition), NMFS believes that fish densities represented by good habitat conditions represent that worst case scenario.

Considering the types of projects that would likely require fish salvage under the proposed action, NMFS estimates that salvage operations would not likely exceed 450 square feet in size. Applying Hall-Griswold and Petrosky's estimated 14 steelhead per 1,076 square feet for good habitat, and five percent mortality (two percent direct and three percent delayed from vertebral injuries) for electrofishing (McMicheal, G.A. *et al*. 1998; Hudy, M. 1985), NMFS estimates that each project could result in the mortality of one steelhead. The number of actions which could involve electrofishing operations would not likely exceed 20 per year. This would result in a total lethal take of 20 juvenile steelhead for one calendar year of electrofishing actions. The non-lethal take from electrofishing operations would amount to five steelhead per operation. Assuming 20 operations were conducted in a calendar year, the total non-lethal take would be 100 steelhead.

Capture and release of adult fish is not expected to occur as part of the proposed isolation of in-water work areas since the work window for instream operations is July 1 through August 15, when adults would not be found in the action area. Thus, NMFS does not anticipate that any adult fish will be killed during project operations.

The scope of activity allowed under each type of proposed action is narrowly defined by the NPNF. The effects minimization measures proposed by the NPNF are tailored to avoid direct and indirect adverse effects of those actions on properly functioning habitat conditions. The scope of actions allowed and conservation measures required will probably limit direct lethal effects on listed fish to a few deaths associated with isolation of in-water work areas, an action necessary to avoid greater environmental harm. In 2004 NMFS estimated that approximately 1.5 million wild steelhead would migrate out of the Snake River Basin (http://www.nwr.noaa.gov/1 salmon/salmesa/pubs/04outmigration.pdf). Assuming out-migration numbers remain relatively constant, the loss of 20 juvenile steelhead is highly unlikely to jeopardize the continued existence of the species.

All other direct adverse effects will likely be transitory and within the ability of both juveniles and adults to avoid by bypassing or temporarily leaving the proposed action area. Such behavioral avoidance will probably be the only significant biological response of steelhead to the proposed actions. This is because project activity areas (for those actions likely to cause these responses) are expected to be small compared with the total habitat area; the intensity and severity of environmental effects within the action area has been comprehensively minimized; and more properly functioning habitat conditions are likely to recover within the action areas inside the time span used to evaluate local environmental variation in the long-term survival of steelhead populations

An incremental change in the likelihood of survival and recovery for Snake River steelhead resulting from the proposed action cannot be quantified. However, based on the effects described above, it is reasonably likely that the proposed action will have short-term negative effects caused by increased sediment yield and direct mortality, but should result in long-term positive benefits to the survival and recovery of Snake River steelhead by reducing chronic sediment and increasing summer and winter rearing habitat.

2.1.3.1.8. Effects on Designated Critical Habitat. The actions, as proposed, are likely to have the following direct and indirect effects on designated critical habitat: (1) Increased sediment deposition throughout the action area which would tend to decrease the amount of both summer and winter rearing habitat; (2) increased instream habitat complexity from LWD and newly constructed rock and log structures which would tend to increase summer and winter rearing habitat; (3) increased resting pools for adults below structures; (4) increased shading and reduced water temperature after the streamside vegetation is established; (5) improved spawning gravels around rock and log structures; and (6) improved forage around instream structures and streamside vegetation.

These changes will primarily affect juveniles of Snake River Basin steelhead rearing in the action area, but will also affect adults migrating and spawning in the Red River watershed. The condition of the aquatic habitat and the streamside habitat will be greatly improved for feeding, breeding, rearing, and migrating Snake River steelhead. The limiting factor in these watersheds is summer and winter rearing habitat and the goal of the instream habitat improvements is to increase the summer and winter carrying capacities of Red River.

An incremental change in the conservation value of critical habitat within the action area due to the proposed action cannot be quantified. However, based on the effects described above, it is reasonably likely that the proposed action will have small to moderate, local, short-term negative impacts and long-term positive benefits in the conservation value of the critical habitat affected.

2.1.3.2. Effects on Listed Species and Their Habitat in South Fork Clearwater River

2.1.3.2.1. Sediment. The NPNF made an assessment of ongoing and proposed activities in the SFCR subbasin as part of their effects analysis in the Red Pines FEIS. The NEZSED model was used to calculate the predicted Red Pines project sediment yield (fuel reduction activities, temporary road construction, road reconstruction, and fire activities), plus a combination of other projects (Meadow Face, American and Crooked Rivers, Whiskey South, several private lands vegetation treatment projects, and the Nez Perce Tribe Newsome and Upper Main Red River restoration projects).

A comparison of the sediment yield generated between the existing baseline and the proposed action as a percent of the estimated annual sediment yield in the SFCR is displayed in Table 18. Existing sediment yield over base from past project activities, plus the additional sediment yield generated from the Red Pines project was routed to the mouth of Red River. The Whiskey South Fuels Reduction and Upper Red River Watershed Restoration projects added an additional sediment yield of 3 tons/year. When natural, existing, and cumulative activity sediment yields are added, the estimated contribution from the Red River project accounts for 9.6% of the overall sediment yield entering the SFCR, compared to 9.3% for existing conditions. The Red Pines Project by itself adds only 0.3% to the total amount of sediment yield routed to the confluence with the SFCR. When the amount of sediment yield from the Red Pines Project is added to the total sediment yield of the SFCR at the Forest Boundary near the Mt. Idaho Bridge, this amounts to only 0.37%. In both instances, the amount added to the total sediment yield is probably of little consequence.

Historic analysis of sediment yield in the SFCR since 1870 was conducted in the SFCR Landscape Assessment (USDA Forest Service 1998) and updated for the Red Pines Project analysis. The peaks in sediment yield prior to 1950 are the result of wildfires occurring over the past century. After 1950, peaks of sediment yield occurred largely in response to road construction. The BA concluded that chronic sediment yield gradually accumulated as a result of more roads being built and left on the landscape.

Table 18. Sediment Routed from Red River to the confluence of the South Fork Clearwater River and downstream to the NPNF boundary at the Mount Idaho Bridge

Alternative	Natural (base) Sediment Yield (tons/year)	Existing Activity Sediment Yield (tons/year)	Red Pines Activity Sediment Yield (tons/yr)	Total Routed Sediment Yield (tons/yr)	Cumulative Increase (tons/yr)	Cumulative Total Routed Sediment Yield (tons/yr)	Total Routed Sediment Yield As Percent Of:
Red River	1217	277[1]	0	1494	3	1497	9.3
w/Red Pines Project	1217	277[1]	54	1548	3	1551	9.6
South Fork[4] Clearwater R.	13,400	1200[2]	54	14,654	3[3]	14,654	0.37

[1] Includes portions of Whiskey-South and Upper Red River Restoration sediment yield
[2] Includes Whiskey-South, American-Crooked, Meadow Face, plus all other modeled activity sediment yield
[3] Already included in existing sediment yield
[4] Routed from project to just upstream of the Mount Idaho Bridge

2.1.3.2.2. Water Temperature. The Red Pines Project is not expected to have a noticeable effect on water temperature in the SFCR. There will be no timber harvest within RHCAs in the project area; therefore, shade will not be reduced. Also, there are no channel morphology changes expected that would result in a wider, shallower channel; therefore, increased solar heating would also not occur. Over time, shade and channel morphology in the Red Pines Project area should improve with implementation of the riparian and instream improvements. However, the effect on water temperature from these improvements will be subtle and occur over a long period of time.

2.1.4. Cumulative Effects

'Cumulative effects' are those effects of future state or private activities, not involving a Federal nexus, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02). Cumulative effects that reduce the capacity of the listed species to meet their biological requirements in the action area increase the risk that the effects of the proposed action on the species or its habitat will result in jeopardy (NMFS 1999).

In their BA, the NPNF supplied information on a number of future and ongoing state and private activities reasonably certain to occur in the action area (Table 19). They include projects such as road surfacing and maintenance; hazard tree removal; private lands grazing, timber harvest, wood products, home development, and defensible space; commercial hot springs; meadows and stream restoration; suction dredge mining; road decommissioning; and culvert upgrades.

Table 19. Non-Federal Projects in Red River and South Fork Clearwater River Upstream of NPNF Forest Boundary

Projects in Red River Watershed				
Non FS Land Manager	**Location**	**Project and Activity Type**	**Size**	**Time Period**
Idaho County	Red River Administrative Site to Red River Hot Springs	County Road 234 - Resurface with aggregate	11 miles	Ongoing
IDFG; Idaho County	Open roads within the watershed	Red River Hazard Trees - Roadside salvage of dead and dying trees	~ 200 miles	Ongoing
Idaho County	Throughout Red River watershed	Road Maintenance - Various levels of maintenance of roads not scheduled for decommissioning	~ 200 miles	Ongoing
Private	Private lands	a) private land grazing mainly in Red River meadows b) hayed land c) home development, hot spring use d) recreational use e) timber and wood products f) recreation: motorized trails, hunting, fishing, hiking g) roads	a) 2300 acres b) ~ 500 acres c) Misc. d) Watershed e) Watershed f) Watershed g) Watershed	Ongoing
IDFG	Red River Wildlife Mgt. Area	Red River Stream Restoration	3-5 miles over 10 years	Foreseeable Future
IDFG; NRCS	Red River Wildlife Mgt. Area	Lower Red River Meadows Restoration	~ 2000 acres	Foreseeable Future
Projects considered for cumulative effects in the South Fork Clearwater River Subbasin				
Non FS Land Manager	**Location**	**Project and Activity Type**	**Size**	**Time Period**
Nez Perce Tribe [1]	Mill Creek	Culvert replacement on NPNF		Foreseeable Future
Nez Perce Tribe [1]	Newsome Creek	Channel Improvement, Road Decommissioning, and Culvert replacement on NPNF		Foreseeable Future
Elk City School District	Idaho State Lands	Timber Sale	16 acres	Foreseeable Future
Private	Private lands in: American River, Red River, Crooked River, and SFCR	a) Defensible Space Projects - burning, pruning, pre-commercial thinning, brush and sapling removal b) Recreational Suction Dredge Mining	a) ~ 30-50 acres b) Private lands	Foreseeable Future

[1] These projects will be completed in cooperation with the Nez Perce Tribe, but will undergo section 7 consultation because they are located on NPNF lands.

All of these projects could potentially affect fish habitat. These actions would likely lead to incremental increases in sediment delivery, along with the potential loss of shade and LWD. NMFS has completed consultation on the Seminole Ranch Land Exchange Project and now anticipates the exchange and harvest of 181 acres of land by a private logging company in the American River watershed upstream of the SFCR.

Many of these private actions and state and local government activities (road maintenance; grazing; defensible space and hazard tree removal; burning; pre-commercial thinning and timber harvest; recreation; and recreational mining) are ongoing and have been contributing to the environmental baseline for a number of years. NMFS believes that many of the existing local and state regulatory mechanisms intended to minimize or avoid effects on watershed function and listed species are generally not entirely adequate, and/or not implemented sufficiently. Over time, incremental degradation could occur, and could result in reduced habitat quality for Snake River steelhead. However, there are also a number of restoration activities projected to occur that will improve habitat conditions for salmonids, such as stream and meadows restoration

projects, road decommissioning, and culvert upgrades. Also, the IDEQ has completed a subbasin assessment and TMDL for the South Fork Clearwater River that should help address water temperature and sediment.

Between 1990 and 2000, the population of Idaho County increased 12.7% (U.S. Bureau of the Census 2001). Thus, NMFS assumes that future private and state actions will continue within the action area, increasing as population density rises. As the human population in the action area continues to grow, demand for agricultural, commercial, or residential development is also likely to grow. The effects of new developments are likely to further reduce the conservation value of habitat within the action area.

Although quantifying an incremental change in the likelihood of the survival and recovery for Snake River steelhead due to cumulative effects is not possible, it is reasonably likely that a number of the cumulative effects activities within the action area will have small to moderate, short-term and long-term negative effects on Snake River steelhead. However, it is also likely that the restoration activities, although possibly having short-term negative effects themselves, will in the long term, provide better quality habitat for Snake River steelhead.

2.1.5. Conclusion

After reviewing the best available scientific and commercial information regarding the biological requirements and the status of the Snake River steelhead considered in this Opinion, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River Basin steelhead and is not likely to destroy or adversely modify designated critical habitat for Snake River Basin steelhead.

These conclusions are based on the following considerations: (1) The Red Pines Project, through timber harvest, temporary road construction, and road reconstruction, and through the non-discretionary restoration measures (road decommissioning, watershed road improvements, stream crossing improvements, recreation and trail improvements, mine site reclamations, soil restoration, instream improvements, and access changes) will contribute to sediment increases. However, the project should eventually reduce chronic sediment inputs and contribute to reduced sediment deposition in the stream channel after several decades; (2) the culvert upgrades and instream improvements are expected to increase the habitat quality and diversity in the action area to an extent that more than offsets project impacts from sediment, since the instream improvements should quickly restore factors limiting steelhead production in the action area; (3) riparian plantings will increase the amount of shade and should help reduce water temperatures and increase LWD in the long-term; (4) adequate precautionary measures have been established to protect the rivers from toxic fuel spills, (5) the NPNF has stated that the required watershed improvement items must be completed under this action concurrent with fuel reduction and timber harvest aspects of the action, (6) the number of fish killed during operations will not be large enough to alter populations in these watersheds, and (7) the cumulative effects

will have both short-term and long-term negative and positive effects that should not jeopardize the continued existence of Snake River Basin steelhead and are not likely to destroy or adversely modify designated critical habitat for Snake River Basin steelhead.

2.1.6. Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. The following recommendations are discretionary measures that NMFS believes are consistent with this obligation and therefore should be carried out by the NPNF:

1. The NPNF should implement all discretionary habitat restoration measures described in the Red Pines Project BA.

2. The NPNF should plant trees and riparian vegetation along Red River and its tributaries (outside the current project area) to provide additional stream shade, instream cover, and a food source for fish.

3. The NPNF should improve floodplain conditions throughout the Red River watershed by removing mine tailings and reducing effects caused by adjacent roads, including pioneered roads and trails.

4. The NPNF should improve rearing habitat conditions for salmon and steelhead throughout the Red River watershed.

5. The NPNF should emphasize enforcement of access restrictions on roads and trails.

6. The NPNF should monitor instream habitat improvements to determine if the improvements are increasing the densities of steelhead.

Please notify NMFS if the NPNF carries out any of these recommendations so that we will be kept informed of actions that minimize or avoid adverse effects, and those that benefit the species or their habitats.

2.1.7. Reinitiation of Consultation

Reinitiation of formal consultation is required and shall be requested by the Federal agency or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of taking specified in the Incidental Take Statement is exceeded; (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that has an effect to the listed species or proposed critical habitat that was not considered in this Opinion; or (4) if a new species is listed

or critical habitat designated that may be affected by the identified action (50 CFR 402.16). In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending conclusion of the reinitiated consultation.

Because sediment deposition is correlated with summer and winter survival of steelhead and the proposed action is likely to deliver sediment to streams in the action area, sediment monitoring is required in this Opinion. Consultation must be reinitiated if any of the following conditions occur: (1) Monitoring shows an increase in sediment deposition, measured as cobble embeddedness or other suitable sediment parameter, in steelhead habitat, which exceeds expectations addressed in this Opinion; or (2) an annual sediment monitoring report is not provided to NMFS by March 1, 2007, and each year thereafter, until the project is completed.

The NPNF BA indicated that significant effects were not anticipated from prescribed burns and slash treatments, and that no burns would be ignited within RHCAs. The NPNF will provide a report to NMFS that would identify any burning outside of prescribed burn plans, or any ignition within RHCAs. The report would evaluate the extent, severity, and the effects of such burns. While NMFS has not identified any take that may occur from burning, the NPNF must reinitiate consultation if: (1) Burning outside the unit at moderate to severe levels exceeds more than 10% of the prescribed burn area for that unit; (2) ignition occurs within the RHCA, or (3) burning occurs within the RHCA that is moderate to severe that will cause a reduction in shading or an increased sediment yield.

The NPNF BA for the Red Pines Project states that the required watershed improvement items must be completed under this action concurrent with fuel reduction and timber harvest aspects of the action. If the required watershed improvement items are not being completed concurrently with the fuel reduction and timber harvest aspects, then the NPNF must reinitiate consultation.

If in any one year the number of steelhead killed exceeds 20 or the number handled exceeds 100, the NPNF must reinitiate consultation. To reinitiate consultation, contact the Idaho State Habitat Office of NMFS and refer to the NMFS number assigned to this consultation.

2.2. Incidental Take Statement

Section 9(a)(1) of the ESA prohibits the taking of listed species without a specific permit or exemption. Protective regulations adopted pursuant to section 4(d) extend the prohibition to threatened species. Among other things, an action that harasses, wounds, or kills an individual of a listed species or harms a species by altering habitat in a way that significantly impairs its essential behavioral patterns is a taking (50 CFR 222.102). Incidental take refers to takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(o)(2) exempts any taking that meets the Terms and Conditions of a written Incidental Take Statement from the taking prohibition.

2.2.1. Amount or Extent of Take

Despite mitigation measures aimed at reducing the negative impacts to fish, NMFS anticipates that the proposed actions are reasonably certain to result in incidental take of juvenile Snake River Basin steelhead because juvenile Snake River steelhead occur in the action area and will be exposed to project effects that are likely to harm or kill a number of fish. The Red Pines Project is likely to harm or kill juvenile Snake River steelhead from ground-disturbing activities increasing sediment deposition in steelhead spawning and rearing areas, from physical contact with fish, or through stress from handling or displacement during instream work activities. For electrofishing activities, the amount of lethal take will be 20 juvenile steelhead per year and non-lethal take will be 100 steelhead per year.

However, the total number of fish likely to be harmed or killed from the proposed action cannot be entirely quantified because the number of fish exposed to project-related sediment and instream work activities, and the severity of effect at any given time cannot be accurately predicted for the 10-year project. The number of fish in the action area, and the location of those individual fish when effects occur will vary throughout the duration of the project. In such circumstances, NMFS describes the extent of take, or surrogate measures of habitat changes or activities that cause take.

An incremental change in the likelihood of survival and recovery for Snake River steelhead resulting from the proposed action cannot be completely quantified. The primary mechanism for take will be due to sediment. It is not possible, however, to quantify this amount of take because: (1) There are a number of projects proposed which are dispersed over a large area in the watershed; (2) the number of fish present in individual project areas is highly variable between streams within the watershed, and (3) the amount of sediment produced by each activity is highly variable, in part due to differences in existing conditions when the work is conducted.

The surrogate measure of take anticipated from instream work is the number and size of instream projects; it is anticipated that the extent of take will increase as the number and/or size of projects increases. NMFS anticipates the number of instream projects is not to exceed 60 stream crossings (42 mandatory, and 18 discretionary), 39 miles of LWD placement (38 mandatory and 1 discretionary), 31.08 miles of riparian improvements (21.08 mandatory and 10 discretionary), 8 miles of structure maintenance (all mandatory), 2 miles (all mandatory) of instream improvement, and 10 acres (9 acres mandatory and 1 acre discretionary) of sediment trap removal. The extent of take for each instream project (culvert, bridge, sediment trap work, or instream restoration) is anticipated to occur from channel modifications, visible plumes of sediment deposition, or through physical contact or displacement of fish while using tools or equipment, for a linear distance not to exceed 50 feet upstream and 300 feet downstream from each crossing or restoration site, plus the actual length of the construction site.

The surrogate measure of take anticipated from sediment caused by ground-disturbing activities is the percent change in cobble embeddedness as predicted in the BA in fish-bearing streams. Cobble embeddedness, or related measures (such as free matrix particles, percent fines by volume) are surrogate measures of the amount of interstitial space between rocks and gravels

used by steelhead for spawning or juvenile rearing. The amount of interstitial space is statistically correlated with spawning success and the carrying capacity of juvenile rearing habitat (Waters 1995). Changes in cobble embeddedness are not to exceed the following anticipated increases as shown in Table 20.

Table 20. Existing, Predicted, Percent Change, and Anticipated Increases for cobble embeddedness (CE) by subwatershed where increases are predicted

Subwatershed	Existing CE (%)	Predicted CE (%)	Percent Change CE	Anticipated Increase % CE
Lower Red River	31	35	11.4	4
Siegel Creek	55	59	6.78	4
Ditch Creek	62	67	7.46	5
Soda Creek	50	54	7.41	4
Main Red River	45	49	8.16	4
Schooner Creek	50	55	9.09	5
Lower SF Red River	66	68	2.94	2
Little Moose Creek	55	59	6.78	4
Blanco Creek	50	54	7.41	4
Red Horse Creek	52	54	3.70	2
Campbell Creek	43	48	10.4	5
Lowest Red River	45	49	8.16	4
All other subwatersheds				None

Since the NPNF does not anticipate significant effects from prescribed burns and slash treatments, no take for such burns is allowed.

The extent of habitat exceeding that described for the instream work activities and the anticipated increase in sediment deposition, measured in terms of cobble embeddedness or other related measurement, from the ground disturbing actions are the thresholds for reinitiating consultation. Should any of these limits be exceeded during project activities, the reinitiation provisions of this Opinion apply.

2.2.2. Reasonable and Prudent Measures

The RPMs are non-discretionary measures to avoid or minimize take that must be carried out by the NPNF or cooperators for the exemption in section 7(o)(2) to apply. The NPNF has the continuing duty to regulate the activities covered in this Incidental Take Statement where discretionary Federal involvement or control over the action has been retained or is authorized by law. The protective coverage of section 7(o)(2) may lapse if the NPNF fails to exercise its discretion to require adherence to Terms and Conditions of the Incidental Take Statement, or to exercise that discretion as necessary to retain the oversight to ensure compliance with these Terms and Conditions. Similarly, if any applicant fails to act in accordance with the Terms and Conditions of the Incidental Take Statement, protective coverage may lapse.

NMFS believes that full application of the project MDC included as part of the proposed action, together with use of the RPMs and Terms and Conditions described below, are necessary and appropriate to minimize the likelihood of incidental take of listed species due to completion of the proposed action.

The NPNF shall:

1. Ensure completion of a monitoring and reporting program to confirm this Opinion is meeting its objective of limiting the extent of take and minimizing take from permitted activities.

2. Minimize the impact of incidental take by requiring all designs and plans of operation for any activity implemented through private contract to include all applicable Terms and Conditions and project design and mitigation measures from this Opinion.

3. Minimize the impact of incidental take resulting from timber harvest.

4. Minimize the impact of incidental take resulting from road activities.

5. Minimize the impact of incidental take resulting from instream work.

6. Minimize the impact of incidental take resulting from fuel spills.

7. Minimize the impact of incidental take resulting from mine reclamation activities.

8. Ensure that the required watershed improvement items are completed under this action concurrent with fuel reduction and timber harvest aspects of the action.

2.2.3. Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the NPNF and its cooperators, including the applicant, if any, must comply with the following Terms and Conditions that implement the RPMs described above. Partial compliance with these Terms and Conditions may invalidate this take exemption, result in more take than anticipated, and lead NMFS to a different conclusion regarding whether the proposed action will result in jeopardy or the destruction or adverse modification of critical habitat.

1. To implement RPM #1 (monitoring), the NPNF shall:

    a. Report annually to NMFS:

        (1) Compliance with the Terms and Conditions and the project design and mitigation measures.

        (2) Descriptions of any incidental take occurring as a result of the project.

(3) Remedies to address and resolve problems identified in Terms and Conditions 1a(1) and 1a(2), above.

(4) Any environmental effects of the action that were not considered in the BA or this Opinion; report immediately any MPI habitat indicators that change from "functioning at risk" to "not properly functioning."

(5) The number and size of instream construction projects completed. Report also any discretionary habitat restoration activities completed with this project.

(6) The effects of ground disturbing activities in areas occupied by ESA listed species by monitoring 15 to 20% of the sites. Monitor instream substrate conditions at ground disturbing work sites and report changes in cobble embeddedness, or other validated substrate monitoring, such as percent surface fines, in areas within and beyond 300 feet downstream. Monitoring in unoccupied habitat will primarily focus on implementation monitoring to ensure implementation of Terms and Conditions and project design criteria.

(7) The effects of mine reclamation. Monitor substrate conditions for changes to cobble embeddedness, the concentration or amount of toxic chemicals released, and the turbidity associated with stabilizing and restoring mine tailings.

(8) Any burning outside of prescribed burn plans, or any ignition within RHCAs. The report would evaluate the extent, severity, and the effects of such burns. The monitoring report will focus on: (1) Burning outside the unit at moderate to severe levels that exceed 10% of the prescribed burn area for that unit; (2) ignition occurring within the RHCA, and (3) burning occurs within the RHCA that is moderate to severe that will cause a reduction in shading or an increase in sediment yield.

b. Submit to NMFS a draft of the monitoring plan prior to project implementation that includes:

(1) A map of instream substrate monitoring locations and description of sampling design.

(2) A description of substrate monitoring protocols.

(3) A description of protocols for monitoring instream activities, including culvert replacements, road decommissioning at stream crossings, and stream channel restoration.

c. Notify NMFS promptly of any emergency or unanticipated situations in the action area that may be detrimental to steelhead. NMFS will then determine if project activities must cease or may continue, pending resolution of the problem and its impacts.

d. Submit all monitoring reports to NMFS, Idaho State Habitat Office, 10095 W. Emerald St. Boise, Idaho 83704.

2. To implement RPM #2 (plans of operation), the NPNF shall:

    a. Ensure designs and plans incorporate MDCs, BMPs, SWCPs, Forest Plan standards, and ESA requirements.

    b. Include all applicable Terms and Conditions of this Opinion and all MDCs from the BA in any permit, grant, or contract issued for the implementation of the Red Pines Project.

3. To implement RPM #3 (timber harvest), the NPNF shall:

    a. Locate log landings outside RHCAs unless use of the RHCA has fewer impacts than an alternative area outside the RHCA, or where use of a log landing in an RHCA would have a negligible effect on riparian vegetation or stream conditions. The reasons for locating landings within an RHCA must be documented and placed in the file prior to use of any such locations in the RHCA. This documentation must also be reported in the annual monitoring report described in Term and Condition 1a.

    b. Limit tractor harvest to slopes of 35% or less.

    c. Directionally fall any tree needed to be cut within the RHCA toward the stream, if practical and safe, and leave as LWD.

4. To implement RPM #4 (road activities), the NPNF shall:

    a. Avoid widening roads in RHCAs towards water, unless the NPNF receives a site-specific exemption from this Term and Condition from NMFS. Stream crossing improvements are excluded from this Term and Condition since increasing their size requires widening of road fill toward the creek.

    b. Implement road decommissioning as follows:

        (1) Reconstruct stream crossings to approximate the natural condition, except for circumstances where adverse effects would be less with an alternative design. Ensure that the stream channel and floodplain cross-sections are returned to contours that approximate the natural widths, depths and slopes, and stream grades are returned to near natural condition. Install grade control structures if needed to meet objectives.

        (2) An aquatic specialist will review the proposed decommissioning activities and contract requirements to ensure they are timed to minimize sediment production and impacts to aquatic resources.

    c. Implement road maintenance and reconditioning by providing frequent ditch relief structures to prevent road drainage water from running long distances to live water and intermittent streams. Also, when possible and effective, the NPNF shall provide ditch relief prior to live water crossings.

d. Construct temporary roads as follows:

(1) Locate temporary roads to avoid adverse effects on streams, wetlands, and landslide prone terrain.

(2) Construct slash windrows to reduce erosion effects to nearby aquatic resources.

(3) Construct stream crossings on temporary roads in accordance with all MDCs to comply with PACFISH standards.

e. Plow snow to meet the standards and guidelines established in the NPNF Programmatic BA of the Road Management Program and include the provisions in any contract.

f. De-water culverts prior to culvert replacement, if appropriate for the site.

g. Maintain trail system to minimize potential for erosion, commensurate with authorized use.

5. To implement RPM #5 (instream work), the NPNF shall:

a. Require a fish biologist to ensure that the risk of harm to listed fish will be minimized, prior to placing LWD or rock structures into a stream

b. Provide NMFS with a construction plan prior to beginning instream construction. Implement instream activities (culvert replacements, stream crossings, sediment trap removal, and instream improvements) according to approved construction plans. Sediment trap removal shall include a plan to minimize the amount of sediment released to the stream.

c. Operate equipment used for culvert and instream fish habitat improvement activities from existing roads or the streambank unless activities require instream operation.

(1) Prevent destruction of undercut banks by only entering the stream with heavy equipment where undercut banks are not present.

(2) Require an aquatic specialist to designate heavy equipment water crossing sites that will least affect steelhead, if crossings will occur within 500 feet of occupied habitat.

d. Require a fish biologist to survey all project sites prior to operating equipment to determine if steelhead or redds are present as follows:

(1) For culvert replacements in tributary streams, surveys will be conducted by looking for fish from the stream bank with polarized glasses or by snorkeling. If steelhead or rainbow trout are present, NPNF personnel shall attempt to chase the fish from the area, and then construct a temporary fish barrier above and below the construction

site using a block net or similar arrangement to prevent fish from entering the construction area. The net shall remain in place for the duration of instream work at the project site. If that is ineffective and mortality is likely to occur if fish are not moved, fish biologists will remove fish by electrofishing following NMFS guidelines. The captured fish shall be moved upstream from the construction area, and released in a suitable pool.

(2) If steelhead redds are located within 50 feet upstream or 300 feet downstream from an instream construction site, instream work shall not begin until a fish biologist verifies:

(a) that juveniles have emerged from the redd(s), as indicated by the presence of age-0 fish in the vicinity of the redd(s); and

(b) that work activities will avoid newly emerged fry.

e. Require operators of construction equipment and/or construction personnel to immediately cease operation if a sick, injured, or dead specimen of a threatened or endangered species is found in association with project activities. The finder must notify the NPNF, which in turn will contact the Idaho State Habitat Office of NMFS Law Enforcement at (208) 321-2956 before resuming activities. The finder must take care in handling sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

f. Retain areas of intact functioning riparian vegetation where possible during instream restoration work.

6. To implement RPM #6 (fuels), the NPNF shall:

a. Prepare and implement a Spill Plan (40 CFR 112) that incorporates the rules and requirements of the IFPA section 60, Use of Chemicals and Petroleum Products; and U.S. Department of Transportation rules for fuels haul and temporary storage with additional direction as follows:

(1) Prepare and implement a Spill Plan when over 100 gallons of fuel is present in any location.

(2) Designate heavy equipment maintenance locations 300 feet from live water and outside wetland locations.

(3) Store fuel at least 300 feet from live water, except when working in locations where this is unreasonable. Fuel must be stored in an impermeable membrane that can hold 125% of the volume of fuel being stored.

(4) Refuel at least 300 feet from live water. When in wet, lowland locations and in mine tailings, where getting 300 feet from water is not possible, a spill containment basin will be placed under the fuel tank being refilled to catch any accidental spills.

(5) Notify NMFS promptly of any fuel spill of 1 gallon or more.

b. Inspect all heavy equipment, prior to instream activities, to assure there is no leakage of oil, fuel, or hydraulic fluid.

7. To implement RPM #7 (mine reclamation), the NPNF shall:

a. Report the chemicals and their concentrations found at the reclamation sites to NMFS. Reinitiate consultation for the mine activities if metal concentrations are found in quantities that could result in acute or chronic effects to fish.

b Provide NMFS with detailed project designs for all mine reclamation projects before beginning any restoration or stabilization work.

8. To implement RPM #8 (upward trend), the NPNF shall:

a. Track those project activities that have been completed, and those that are not completed in a display showing the following categories: (1) Activities that directly restore or improve fish habitat and watershed conditions, including road decommissioning, trail conversions, stream channel restoration, soil rehabilitation, and culvert replacements, and (2) activities that do not directly restore or improve fish habitat and watershed conditions, including road construction, timber harvest, and prescribed burns.

b. Report annually the progress and accomplishment in each of the two categories above, along with what activities are planned for the next 12 months.

c. If a report indicates that implementation and/or completion of the category 1 activities lags behind that of category 2 activities, submit a course of action to NMFS within 30 days of the annual report that would help make up the deficit of category 1 activities no later than 1 year after the report date.

d. Submit annual reports by March 15 to: National Marine Fisheries Service, 102 N. College, Grangeville, Idaho 83530.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

The consultation requirements of section 305(b) MSA directs Federal agencies to consult with NMFS on all actions, or proposed actions, that may adversely affect EFH. Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse

effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that may be taken by the action agency to conserve EFH.

The Pacific Fishery Management Council designated EFH for Chinook salmon, coho salmon, and Puget Sound pink salmon (PFMC 1999). The proposed action and action area for this consultation are described in the Introduction to this document. The action area includes areas designated as EFH for various life-history stages of Chinook salmon. The effects of the proposed action on EFH are as follows: (1) Increased sediment yield; (2) increased risk of toxic fuel contamination; (3) short-term loss of instream cover caused by instream work and increased sediment deposition; (4) temporary changes in food supply and potential alterations of the benthic macroinvertebrate community; (5) disruption of streambed habitat caused by instream work and heavy machinery; and (6) increased water yield and ECA as a result of timber harvest activities.

3.1. EFH Conservation Recommendations

NMFS believes that the following eight conservation measures are necessary to avoid, mitigate, or offset the impacts of the proposed action on EFH. These Conservation Recommendations are an identical set of the ESA Terms and Conditions.

1. Term and Condition 1 (monitoring) and its supporting points will ensure these conservation recommendations are achieving their goal of minimizing project effects on all EFH issues.

2. Term and Condition 2 (plans of operation) and its supporting points will ensure these conservation recommendations are achieving their goal of minimizing project effects on all EFH issues.

3. Term and Condition 3 (instream work) and its supporting points will ensure these conservation recommendations are achieving their goal of minimizing project effects on water quality, sediment delivery, forage species, and pool habitat.

4. Term and Condition 4 (fuel spills) and its supporting points will ensure these conservation recommendations are achieving their goal of minimizing project effects on water quality and forage species.

5. Term and Condition 5 (timber harvest and controlled burns) and its supporting points will ensure these conservation recommendations are achieving their goal of minimizing project effects on water quality, water yield, water temperature, pool habitat, and sediment delivery.

6. Term and Condition 6 (road construction and use) and its supporting points will ensure these conservation recommendations are achieving their goal of minimizing project effects on water quality, water temperature, pool habitat, and sediment delivery.

7. Term and Condition 7 (exposed soil) will ensure these conservation recommendations are achieving their goal of minimizing project effects on water quality, pool habitat, instream sediment deposition, and sediment delivery.

8. Term and Condition 8 (upward trend) will ensure that the required watershed improvement items be completed under this action concurrent with fuel reduction and timber harvest aspects of the action.

3.2. Statutory Response Requirement

Federal agencies are required to provide a detailed written response to NMFS' EFH conservation recommendations within 30 days of receipt of these recommendations [50 CFR 600.920(j)(1)]. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse affects that the activity has on EFH. If the response is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

In response to increased oversight of overall EFH program effectiveness by the White House Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the EFH portion of this consultation, NMFS asks that you clearly identify the number of conservation recommendations accepted.

3.3. Supplemental Consultation

The NPNF must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations [50 CFR 600.920(k)].

4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554) ("Data Quality Act" (DQA)) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Opinion addresses these DQA components, documents compliance with the DQA, and certifies that this Opinion has undergone pre-dissemination review.

Utility: This ESA section 7 consultation on the Red Pines Project, in Idaho County, Idaho, concluded that the action will not jeopardize the continued existence of Snake River steelhead. Therefore, the NPNF may authorize that action. Pursuant to the MSA, NMFS provided the

NPNF with conservation recommendations to conserve EFH. The intended user of this consultation is the NPNF and the person, company, or group to whom the contract is awarded. The timber industry and its employees will benefit from the timber harvest and associated activities portion of this consultation. The recreational and sporting segments will benefit from the watershed and instream improvements portion of this consultation. The local community will benefit economically from the entire range of activities.

Individual copies were provided to the above-listed entity. This consultation will be posted on the NMFS Northwest Region web site (http://www.nwr.noaa.gov). The format and naming adheres to conventional standards for style.

Integrity: This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, "Security of Automated Information Resources," Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

Objectivity:

Information Product Category: Natural Resource Plan.

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA Regulations, 50 CFR 402.01 *et seq*., and the MSA implementing regulations regarding EFH, 50 CFR 600.920(j).

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the literature cited section. The analyses in this Opinion/EFH consultation contain more background on information sources and quality.

***Referencing*:** All supporting materials, information, data, and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with Northwest Region ESA quality control and assurance processes.

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